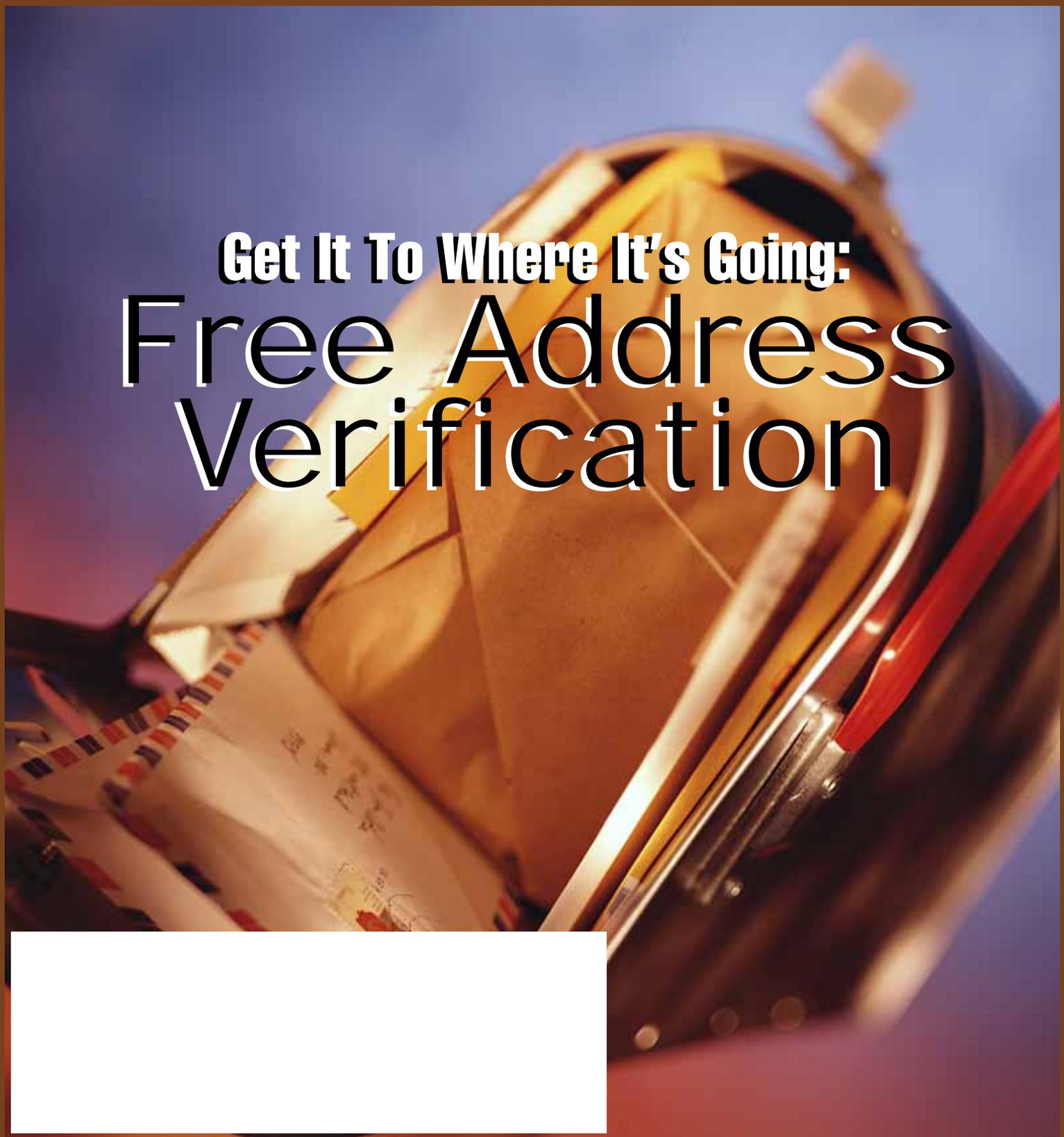


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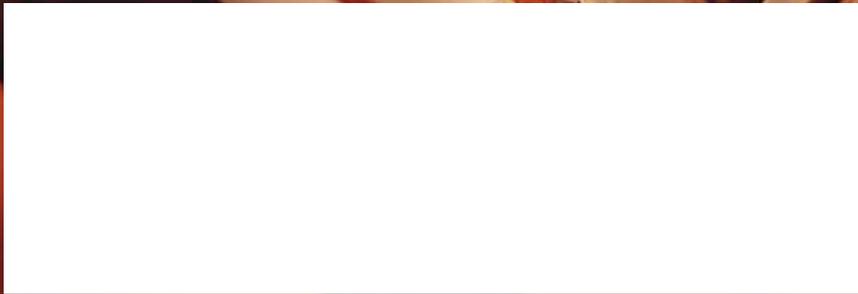
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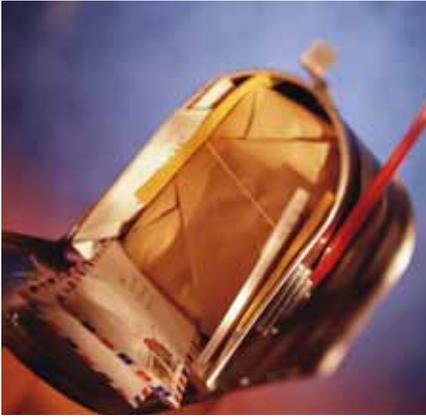
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**USING UNIVERSE INDEXES: PART 1** This first part in a series about using indexes on the IBM UniVerse platform starts with the concept of indexes, the advantages, the cautions, and an example of defining, building, and using indexes. BY CLIFTON OLIVER, CCP

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**BRIDGING TECHNOLOGIES BETWEEN MULTIVALUE ERP AND OFFICE APPLICATIONS** Combining documents produced by your MultiValue ERP applications with Office productivity applications like spreadsheets, word processing, and e-mail clients presents some interesting challenges. This article presents an example of one solution. BY MIGUEL ESCOBAR, SYNERGETIC DATA SYSTEMS INC.

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# From the Inside

BY NATHAN RECTOR

MultiValue User Groups are everywhere. Do I have your attention? Yes, you heard me right. MultiValue User Groups are everywhere. The only problem is that no one is holding any meetings.

For those that have been in the market for a number of years, remember the user group meetings that had 30 or more people attending? Then, over time, the meetings seemed to get smaller and smaller until people stopped planning new meetings.

Ok, so you are saying that is proof that the user groups are dead? I disagree. Many of the people that attended the meetings in the past would be interested in attending again now. They are just waiting for someone to tell them when and where the meetings are.

There are two roadblocks that many people find to starting or restarting a user group meeting: location and food. Some might say attendance, but, in reality, that is just an issue with the location and/or food.

Let's start with the location issue. Many of us work in buildings or for companies that have conference rooms that can hold 10-20 people easily. Check with your boss to see if you can use the conference room for one evening. This allows you to set a location to start with. If you get a large turnout, you can always talk it over with the people that attended to see if they want to do it at another location that you may have to pay for.

I've talked with a lot of people over the last couple years would love to be part of a user group again and would be willing to contribute \$10 to \$20 to pay for a room and/or food.

Now, the food question. No, you don't have to do a dinner or an open bar for your meetings. If you are meeting in a conference room, get bags of chips and a cracker and cheese platter from the grocery store, and you are ready. Or, ask people to bring a snack. Once you get your meetings going again, you can talk about doing something fancier.

Next is the question of what do you talk about? That is the easier part. Talk about why your company uses MultiValue, or how your company implements a product or hardware, or what your company does on a day-to-day basis. It does not have to anything extravagant. Talk about how you just upgraded your system, installed new hardware, or hired a new employee. You can even talk about how MultiValue technologies have helped make your company successful.

Now the trick is keeping the user group going. This is easier than you think. At your first meeting, pick a day every month or every other month that you will meet. Then schedule a person from the user group to talk at that meeting, or you can volunteer one of your members to call one of the third-party vendors to give a demonstration. Most of these companies would be happy to do so, even if there are only five people at the meeting.

Once you schedule your meetings, then let people that were unable to attend the first meeting know when the next meeting will be, so they can try to make that one. We all have busy lives, so don't expect a major turnout every meeting. Attendance will fluctuate from meeting to meeting.

The last thing to do is notify us at International Spectrum of when your meeting will be, so we can notify the greater MultiValue world that the user group exists and is interested in seeing people show up.

If you are interested in more on how to start and run a user group meeting, join us at the International Spectrum Conference March 31st-April 4th. We will have a session on how to do this and you can talk with members of some of the existing users groups to see how they stay successful.

**-NATHAN RECTOR**  
President, International Spectrum  
nathan@intl-spectrum.com

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# Using UniVerse Indexes: Part 1

**W**hen I am contracted by a company to perform a UniVerse system configuration and performance review, one of the things I look at is the use of indexes. Sometimes I find one of two extremes: one, either indexes are being underutilized or not used at all or, two, they have been used with reckless abandon, even to the point of degrading hour-to-hour performance.

In most cases, this is caused by a lack of knowledge about indexes and their proper use — a misunderstanding of the pros and cons of indexes or poor choices made by assuming that UniVerse indexes are implemented the same as they were on a different MultiValue platform from which the application has been converted.

This series of articles intends to provide information about the use and implementation of indexes on IBM's UniVerse platform that will help you implement their use, if you are not already doing so, and avoid some of the common errors and pitfalls. For those who are new to the idea of indexes or perhaps just new to the MultiValue community, let's start with a little bit of history and an overview of the general concept.

*Continues on page 8*

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### XREFs and Indexes

In the early days of MultiValue, files did not have index capabilities. The only way to select a subset of records from a file was to individually read every record and see if it was qualified by your criteria. This is true whether you are using the SELECT verb or doing it yourself in a Basic program. This worked well for small- to moderate-sized files, but as application packages got more successful and started being sold into larger companies, file sizes and record counts rapidly increased. The time it took to SELECT a set of records from a *large* file became a problem. (Of course, the definition of what constitutes a large file has changed over the years. Back in the early 1970s, a file with 50,000 records was considered by many to be large – something we consider trivial by today's standards.)

To get around this problem, applications began implementing their own cross-referencing technique. This was frequently referred to as an XREF, a term taken from a common file naming convention. For example, say that your application had to frequently select the customer file for all customers in a particular ZIP (postal) code. In addition to

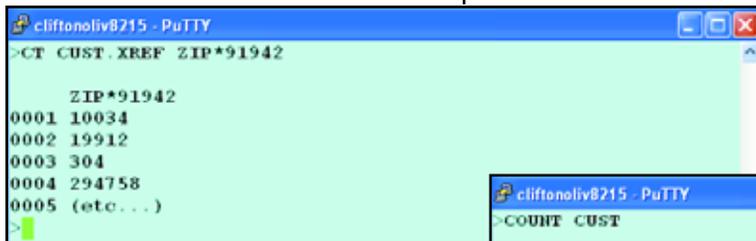


FIGURE 1 - CUST.XREF record

the CUST file, you would also have a file called CUST.XREF that would contain cross-reference records for a variety of fields. If you wanted all of the customers in the 91942 ZIP code, you would read the record "ZIP\*91942" from the CUST.XREF file. This record would contain a list of all the CUST records whose ZIP code field contained 91942 (fig. 1).

Some developers preferred to store these in consecutive fields. This made

```
program TimeIt
cmdToRun = trimf(@sentence)
cmdToRun = cmdToRun[ (index(cmdToRun, " ", 1) + 1), 999]

startTime = time()

execute cmdToRun

stopTime = time()
elapsedTime = (stopTime - startTime)
crt "-- Elapsed seconds = " : elapsedTime

stop
```

FIGURE 3 - TimeIt

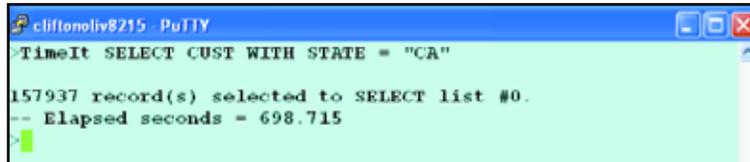


FIGURE 4 - Selecting without an index

```
CREATE.INDEX filename fields... [ NO.NULLS]
BUILD.INDEX filename [ index... | ALL ]
```

FIGURE 5 - Common forms of the CREATE.INDEX and BUILD.INDEX commands

the cross-reference record easier to edit by hand. Others would store them as a multivalued list to remain true to the MultiValue data model. You could now use this list to directly read only those records from CUST without having to scan the entire file. Conceptually, this is exactly the same function as an index, although as we will see later in this

series, the implementation is much different.

the cross-reference record easier to edit by hand. Others would store them as a multivalued list to remain true to the MultiValue data model. You could now use this list to directly read only those records from CUST without having to scan the entire file. Conceptually, this is exactly the same function as an index, although as we will see later in this



FIGURE 2 - CUST count and record layout

While XREFs solved some of the retrieval time problems in the earlier MultiValue systems, they themselves were not with-

out problems. First, to the operating system and database, these were just another data file. It was the responsibility of every program in the application that might add, update, or delete data in a cross-ref-

erenced file to properly update the corresponding XREF records. Second, the cross-references were not directly available to the retrieval verbs such as SELECT or SORT. This was mitigated somewhat when various platforms started adding list-forming verbs such as FORM-LIST and QSELECT, but it still required knowledge of the database, which XREFs were defined, and how to perform a select against a select — not something the casual accounting user wanting to do adhoc queries could be expected to know in many cases.

Indexes, on the other hand, are maintained by the system; no programming is required. It is impossible to update a file that has indexes defined without the index-

es getting appropriately updated. (Well, assuming there aren't any bugs in the system's index-handling routines.) So, let's jump in and see how to use indexes on UniVerse files.

## The CUST File and Timelt Program

I have generated a CUST file with three million records. The records in this file are just fixed strings with the only variation being in the STATE field (fig. 2). This is not realistic, but will be sufficient for us to demonstrate the difference in retrieval time between selecting with versus without indexes.

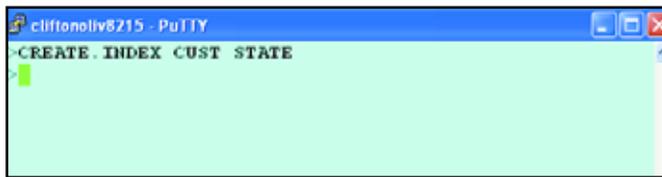
To make it a little easier to run comparison timings, I wrote a simple Timelt program (fig. 3) that displays elapsed seconds in order to compare the run times of various commands. Again, this is simplistic, but the idea here is simply to demonstrate the efficiency of indexes. I am running as a single user, so wall-clock seconds is sufficient to just do relative comparisons for this article. (If you want a much more sophisticated approach to profiling, I recommend you read Mark Baldrige's article at <http://www.ibm.com/developerworks/edu/dm-dw-dm-0512baldrige-i.html>)

### Selecting Without an Index

Figure 4 shows the result of selecting without an index. In this example, it took 698 seconds to select all of the records from the state of California. For the record, I'm using Personal Edition 10.2 on Windows XP running in a virtual machine on a Mac notebook. To make sure that we are not seeing the side effects of disk block caching, I am also restarting XP between each example. Now let's index this file by STATE and see what happens.

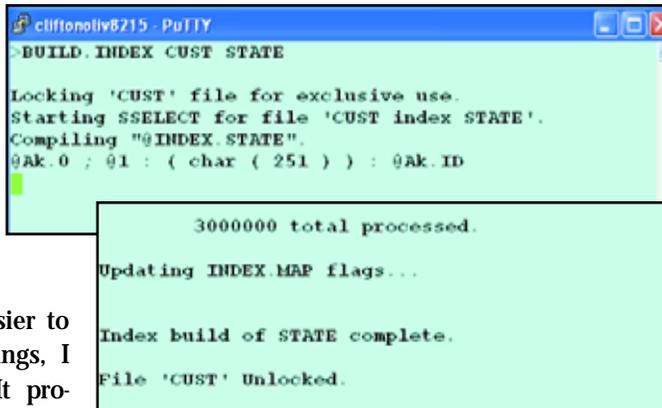
### Creating and Building Indexes

Indexing in UniVerse is a two step process. First, you create (define) the index and, second, you build (populate) it. The syntax for the common forms of the two commands you use are shown in figure 5.



```
cliffonoliv8215 - PuTTY
>CREATE INDEX CUST STATE
```

FIGURE 6 - Creating the index



```
cliffonoliv8215 - PuTTY
>BUILD INDEX CUST STATE

Locking 'CUST' file for exclusive use.
Starting SSELECT for file 'CUST index STATE'.
Compiling "@INDEX.STATE".
@Ak.0 ; 01 : ( char ( 251 ) ) : @Ak.ID

3000000 total processed.
Updating INDEX.MAP flags...

Index build of STATE complete.
File 'CUST' Unlocked.
```

FIGURE 7 - Building the index

You first create the index by using the CREATE.INDEX verb and identifying the file and name of the field (fig. 6).

(We will talk about the NO.NULLS option in a future article.) Then, you populate the index by using the BUILD.INDEX verb (fig. 7). It is as simple as that! From now on, any changes to the STATE field in any record will cause the indexes to be updated appropriately. Any retrieval verbs will automatically make use of the index to avoid having to scan the entire file. Is it worth it?

Figure 8 shows the result of the same SELECT statement now that the STATE field of the CUST file is indexed. That took only one second. So it does appear that indexes are worth considering. In fact, you may be wondering why, if indexes are so great, does your application still have all those XREF files hanging around. Simple. Many application providers take an "if it works, don't fix it" attitude. Plus, for a number of years, some MultiValue platforms had indexes and others did not. It's not easy flogging a 1970s application into the 21st century.

### What Indexes Do You Have?

In order to see what indexes have been defined for a file and the status of

*Continues on page 10*

//

Forgetting the principle of TANSTAAFL – There Ain't No Such Thing As A Free Lunch – they go nuts creating indexes in a quest to never have to wait on a SELECT statement again.

//

# Using UniVerse Indexes

Continued from page 9

those indexes, you use the LIST.INDEX verb (fig. 9). An example of this for our CUST file is shown in figure 10.

## TANSTAAFL

It is at this point that a number of folks make a very poor decision. Forgetting the principle of TANSTAAFL – There Ain't No Such Thing As A Free Lunch – they go nuts creating indexes in a quest to never have to wait on a SELECT statement again. If a field is used in a SELECT once a quarter, they index it. If the customer file has a status code field that in 98% of the cases is set to "A" for Active, they index it to avoid waiting five minutes while a SELECT runs before taking an hour to process the information and generate a complex report. So what's the problem? Why is this not a good thing to do? Let's take a look at the effect of indexes on the update side of things.

Figure 11 shows a simple bit of code I am using to go through the CA records and change the state code. To make sure I am actually updating all of the indexes, I step through the codes rather than just changing CA to XX or some other constant. That spreads the index updates out in a more realistic fashion. I run the test with a paragraph (not shown) that does a GET.LIST and then runs the AlterState program.

The first test is to run this set of updates with the STATE index present. As you see in figure 12, it took 1,007 seconds, about 17 minutes, or roughly 157 records per second.

Next, I deleted the STATE index using the command

```
DELETE.INDEX CUST STATE
```

Using the saved select list and a looping ED pre-store, I reset the STATE field in the affected records to "CA". Then I rebooted XP to make sure the file blocks were not cached in memory, and re-ran our ALTER\_STATE test. As you see in figure 13, the same set of updates now ran in approximately

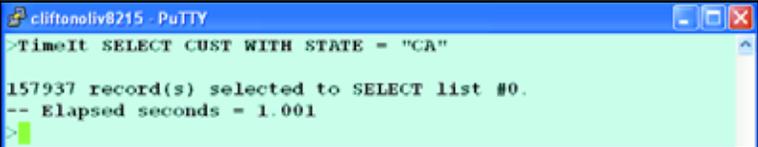


FIGURE 8 - Selecting with an index

```
LIST.INDEX filename [index... | ALL]
```

FIGURE 9 - LIST.INDEX command

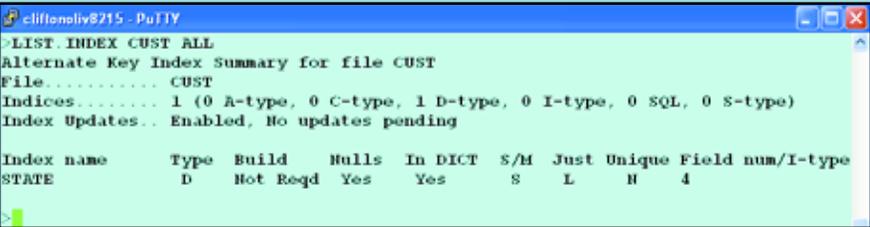


FIGURE 10 - Indexes on the CUST file

```
program AlterState

prompt ""
open "CUST" to custFile else abort

stateCodes = "CA.OR.WA.ID.NV.AZ.NM.TX.OK.MO"
stateCodes := ".KS.WY.NE.LA.MS.FL.AR.TN.KY"
stateCodeNdx = 2

loop while readnext custID
  readu custRec from custFile, custID else abort
  custRec<4> = field(stateCodes, ".",
    -> (RND(19)+stateCodeNdx))
  stateCodeNdx += 1
  if (stateCodeNdx > 19) then stateCodeNdx = 2
  write custRec on custFile, custID
repeat

stop
end
```

FIGURE 11 - AlterState

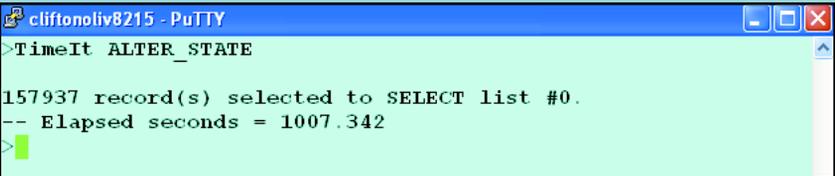


FIGURE 12 - Updates with indexes

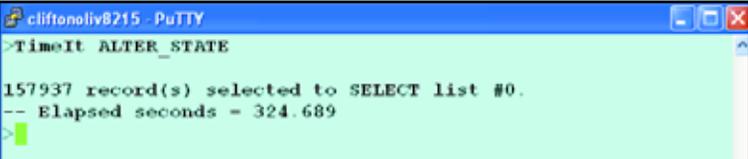


FIGURE 13 - Updates without indexes

one-third the time, 325 seconds, less than 6 minutes, or about 486 records per second.

So, in broad terms, it looks like updating a CUST record where the STATE field has changed takes about three times as long when the field is indexed as it does when it is not. That makes sense when you stop to consider that when the field is indexed, you not only update the record, but the system then has to update the original (CA) index to take that CUST ID out of its list and then updates the new target index (TX, for example) to put the ID into that list.

#### First Principle

So we can now state our first principle of using UniVerse indexes:

*"Do not index indiscriminately."*

#### Next Time

In the next issue, we will take a look how indexes are stored in the host OS file system, how to find the distribution of IDs among your different indexes, the issues surrounding densely populated indexes, and the NO.NULLS option. is

---

**CLIFTON OLIVER** brings over three decades of in-depth experience to his work in the information industry. His expertise includes project management and facilitation, technology management, application development, data warehousing, and strategic planning for information services. In addition to being a Certified Computer Professional, he is also well known as an instructor, speaker, and author for both technical and managerial audiences. As a result of his experience with platforms utilizing a variety of programming languages, operating systems, and databases, he is well suited to help his clients identify, evaluate, and implement effective solutions for a variety of problems and opportunities.

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While we may not be donning a red fire hat, police badge, or tights and a cape, those of us that work in IT are expected to be our customer's hero. No, I'm not nuts. Think about it.

The reason businesses invest in technology is to make things easier, to make their businesses run smoother, to improve the bottom line. They hire people like us to, well, make it all work.

No matter if you work as a programmer in the deep realms of IT, a consultant directly interfacing with end-users, or are a vendor selling solutions, your customers are looking to you to solve their problems, put out the fires, rescue them from cumbersome or costly business issues, and basically save the day with technology

Customers have the power to determine how many IT dollars are spent in your business. Seriously. If you are a programmer in the deep realms of IT, the people you interface with and create solutions for influence how much IT is valued and respected. That perceived value determines the dollars allocated to IT.

If you are consultant or a vendor, you may have better feel for how important customers are. But I challenge to

expand your viewpoint on who a customer is.

A customer is anyone who is using your services directly or indirectly. This includes co-workers, managers, CIOs, executives, end users, clients, even your business' suppliers and customers. Whatever you call your customers, they have influence over your future in IT. Rave reviews are proliferated throughout today's networked world; but so are complaints and grumblings.

How you interact with others, with your customers, will influence how far you go in your career, in your company, in the MultiValue marketplace, and in the IT industry in general. So, how do you become your customers' hero?

#### **Gain a Customer-Centric Focus.**

Yes, many of us love technology for the sake of technology, but our customers usually don't. I used to say that I hate computers, but I love what they can do for me. While I may have grown fond of technology for technology sake, our customers generally haven't.

Our customers are often not fond of computers and know little about all the ins and outs, and they really don't understand that there are specialties. They use computers because it helps make their job easier — or is supposed

to. Our customers look to us to solve their computer problems and help keep everything working. We need to focus on their needs, not on the coolness of the technology or our own comfort zones.

#### **Be Approachable.**

Let's face it. Most of us in IT are fairly introverted. We like spending time alone with our computers. Many of us can do without social contact for hours, some of us for days. But to truly succeed in IT, we must cultivate and spend some energy on our interpersonal skills. We need to recognize that our customers are human and they genuinely want our help, but they would prefer to ask someone who is kind, considerate, and helpful instead of someone who is short, curt, or combative.

Yes, I know it's frustrating to be interrupted when you are deep in writing code or solving a complex problem. And yes, interruptions cost us time. But our customers are the reason we are employed. Treating them kindly, with a smile and a friendly tone of voice, makes them feel like you respect them and are willing to help them out.

Think about it. Next time your house catches on fire, do you want emergency services asking "yeah, what do you want...?" or saying "sorry, I'm too busy right now." Or, "That's not my job." No. You want them to send someone to put out the fire. Be approachable. Be a person the customer wants to call.

### **Listen to Your Customers**

Listening is an interesting skill — it's interactive. Listening is different than hearing. You can physically hear your customer words, but not really listen to what they are saying.

IT professionals, especially those of us who "go deep" and really focus on what we are doing and those of us who are manic multitaskers, need to make a conscientious effort to put aside what we are focusing on or multitasking, turn our full attention to our customers, and truly listen to what they are telling us.

When your customer comes to you, stop what you are doing and really listen. Take the time to show that you comprehend what they are saying. Repeat back them what you understand the challenge to be: "So, what I understand you are saying is...."

Listening means asking questions when you don't understand and delving deeper into the customer's issue, trying to understand what they are want to accomplish. Listen not just to the words, but also the tone, body language (yes, you can often hear body language over the phone), and the silence. Take notes.

By taking the time to listen to your customer, you tell them that they are important. It builds trust. Your customer needs to trust you in order for you to be their hero.

### **Offer Solutions**

Your customer is coming to you for solutions. They don't want to hear about the complexities or how much time something is going to take or how that isn't your area of expertise. They need help, and they need to know what to do. If you don't have solution for the customer immediately, that is okay. Offer to find a solution or find someone that can help them out. The customer doesn't expect you to know everything; they expect you to help them find answers.

### **Understand the Business Impact**

If the customer is coming to you with a business problem, take the time to understand it and understand how it fits into the bigger picture of the business and the business processes. If the customer is coming to you with a system problem, understand the scope of the issue from a business standpoint.

For example, if the customer needs to be able to update the payroll codes and percentages in the system, what kind of timeline do they need to do that by. If it is the day before the first payroll cycle of the year, the problem is huge. The business can't run payroll. Employees are usually not happy when they are not paid correctly. But if it is November and the payroll changes do not go into effect until January, then you have time to work on the problem.

Ask questions to find out the severity of the problem from a business perspective. Generally speaking, issues that prevent employees from working, customers from ordering, patients from making appointments, invoices or insurance forms from going out, or critical accounting process like payroll, month end, and year end from being performed are reasons to escalate a response.

### **Diffuse Negativity**

Let's face it. Our customers are usually coming to us with a problem. They aren't always happy when they call us or appear in our offices or cubicles. Don't take things personally. Some customers need to vent. Some need to rant and rave. Some quietly fume and then erupt. But they all need solutions — not combat, blame, or finger pointing.

The problem exists. It really doesn't matter who caused it. While finding out how it was caused is part of the troubleshooting process, it is possible to do so without adding to a negative situation. Your job is to diffuse the situation, to put the fire out, not fuel the flame.

### **Be Careful with Assumptions**

If you are making any assumptions, check them out with the customer to see if the assumptions are valid: "Just need to make sure I'm not making an invalid assumption here..." Use it as an opportunity to add value.

If you are troubleshooting a system error and suspect (assume) it is a user-induced error, keep things neutral. "Let's just make sure the system is pulling the value correctly, can you read me what field xx says?"

Your customer will appreciate that you are taking the time to make sure things are correct before things go wrong or before spending a lot of time on invalid information.

### **Go the Extra Mile**

When your customer is in a critical spot — the machine is down and employees are unable to work, billing isn't going out, EDI isn't working and their customers are screaming, the web site is down and they are losing revenue — be there for your customer.

Your customer needs to know you will move mountains for them when it really counts. They need to know that you will be there for them — that when five o'clock comes around, you aren't going to walk out the door and leave them hanging. If you have to leave, arrange for another co-worker to take over and get the customer back in business.

### **Follow Through**

If you say you are going to do something, do it. Follow through. Make it happen. If your timeline slips, that's usually okay as long as you re-set expectations. Your customer is relying on you, trusting you to deliver, to find solutions, to make it all come together. They are telling their boss that it is okay, that they've got it handled. If you don't perform, if you don't follow through on what you said, then not only have you disappointed your customer, but you've also made them look bad in the eyes of their boss and their co-workers. You

*Continues on page 45*

## Reporting and Business Intelligence Tools:

# MITS

**I**n continuing our series on Reporting and Business Intelligence tools available to the MultiValue market, we went straight to the source and spoke to Fred Owen, president of MITS, and Gary Owen, vice president of Engineering & Product Development, about the options offered by MITS.

**SPECTRUM:** *So, what got you so involved in this aspect of the business?*

**FRED:** Pat Gilbrough, the founder of MITS, owned a company that offered a MultiValue system for wholesale distribution. He convened a group of customers and listened carefully to their reporting needs. The result was the first release of MITS Discover in 1998. We have simply followed that path to where it lead us.

**SPECTRUM:** *Fair enough. How many different products does MITS have in its portfolio?*

**FRED:** MITS sells two different products — MITS Discover for analytical reporting and MITS Report for transactional reporting.

**SPECTRUM:** *What makes them different from each other?*

**GARY:** MITS Discover is designed to start at higher-level summaries and allows users to drill into information quickly. Because it has calculated the high-level summaries before the user requests a particular report, it can show the data to the user in a format different than what they experience using transactional reporting tools.

For example, it is straightforward to create a report in MITS Discover that compares sales of a particular product across multiple years, quarters, or months. Because these totals have been calculated ahead of time, the report that compares them is produced very quickly.

MITS Report is designed to give users a very similar experience in terms of speed and ease of use, but alternately reports detailed transactions. MITS Report is designed to allow users to sort, filter, and summarize large data sets quickly.

In MITS Discover, it is less common for users to have reports that have more

than 10,000 rows on a particular report. With MITS Report, we wanted the user to be able to have hundreds of thousands (or more) rows on a report and quickly be able to filter that down to a smaller working set.

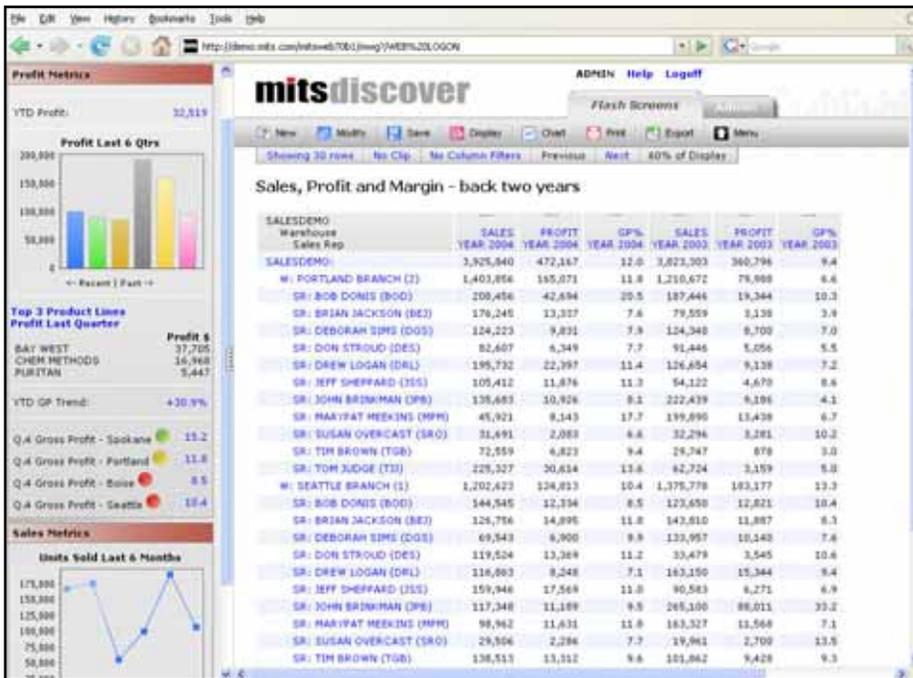
Both products were designed to shorten the amount of time between a user thinking “I need to know...” and them getting the information.

**SPECTRUM:** *So Discover is the one that does Cubing, right? What exactly is that and how does it help me do my job?*

**GARY:** A hypercube, as we call them, is essentially a pre-calculated database of information built from an operational database. For example, a sales database might have orders that keep track of which customer purchased which products and which sales rep sold them the products. If we wanted to know how much of a particular product a sales rep sold, we would need to scan the entire database and find every record that contained that combination of product and sales rep. A hypercube allows us to pre-calculate and store this information so it can be retrieved quickly.

**SPECTRUM:** *How?*

**GARY:** So, say for example, we build a report from a hypercube that dis-



**FIGURE 1 - MITS Discover, an analytical reporting tool**

played all of our sales for this year, broken-down by sales rep. Because I also told the hypercube I was interested in

what customers those sales reps sold to, I could easily click on a particular sales rep, see which customers that sales rep sold to and what the total value of product was. Since those numbers are coming from the hypercube instead of being calculated from the original source data, the information comes back very quickly. We turned a very long scan and calculate operation into a database read operation by pre-calculating the data.

**SPECTRUM:** *So, in one sense, a hypercube is a summary. But because of the way it is constructed, I can drill down to details without re-asking for all of the data?*

**GARY:** Correct. All OLAP tools function on a similar principle. Scanning the original data set can be very time-consuming. Pre-calculating the data allows the user to modify a report interactively.

*Continues on page 16*

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## Reporting and Business Intelligence Tools

Continued from page 15

That is one of the reasons we use the term *interactive reporting* to describe our products.

Ultimately, cubes are helpful because they allow an information worker to spot exceptions or anomalies in a report and quickly navigate to a level of more detail. If the summary data needed to be re-calculated from the original data set for every report, it could take minutes, hours, or, in some of the worst cases, days to display a report that allows someone to discover the underlying cause of an anomaly.

**SPECTRUM:** *Okay, so MITS Discover is both a hypercube builder and the reporting tool which uses the cube?*

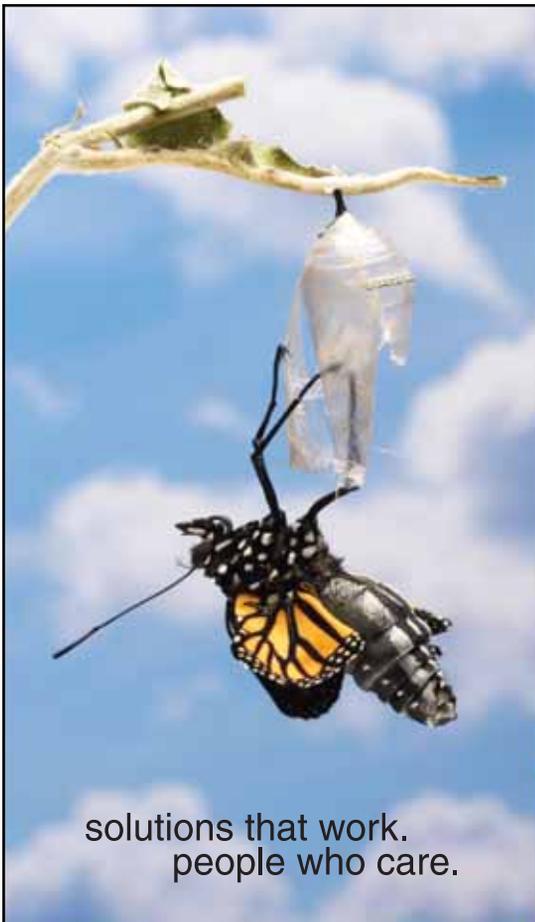
**GARY:** Yes, MITS Discover has all the components necessary to define,

**Our products are designed to make it easy to access and work with your structured, corporate data in the spirit of how Google has made it easy to find and access information on the web.**

build, and view hypercubes. The individual components have different names and some of them are optional, but we provide everything necessary to build reports.

**SPECTRUM:** *So, it all sounds a bit complicated. What's the learning curve like?*

**GARY:** For MITS Discover, the learning curve is steeper than MITS Report, because, as you mention, the concepts are more complicated. MITS has created a step-by-step MitsWeb training CD for more traditional or non-technical report consumers. Additionally, we do offer more intensive training classes that users can attend here in Seattle or regionally (they are typically offered once per quarter). Or, a professional services staff member can be sent on site to help develop custom cubes and train existing IT staff on how to implement their own cubes. We also create pre-made cubes that need only minor



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SAMPLE SALES	Customer	Extended Cost	Product	Total Cost	Unit Price	Description
2112872	13 COINS RESTAURANT	330.48	11495	20,482.47	0.66	ILLUSTRIOUS (11) QUART BOTTLE WITH SPRAYER
2112872	13 COINS RESTAURANT	492.48	11492	20,482.47	0.68	QUATRAMINE 4 QUART BOTTLE WITH SPRAYER
2112872	13 COINS RESTAURANT	557.73	11473	20,482.47	68.85	QUINTET PAL #208-06% WAREWASH DETERGENT
2112872	13 COINS RESTAURANT	389.48	11495	20,482.47	0.66	TRIPLE PLAY QUART BOTTLE WITH SPRAYER
2112872	13 COINS RESTAURANT	1,117.92	13024	20,482.47	51.75	ULTRA STARLITE 2-2.5/CASE #661225
2112872	13 COINS RESTAURANT	1,746.36	11489	20,482.47	0.66	TOP STEP QUART BOTTLE WITH SPRAYER
2112872	13 COINS RESTAURANT	1,957.44	11469	20,482.47	45.31	NATURAL HELPER DEODORANT 2-2.5/CASE
2112872	13 COINS RESTAURANT	2,250.48	11475	20,482.47	29.87	KIFLE OVEN CLEANER CONCENTRATE
2112872	13 COINS RESTAURANT	4,869.60	11485	20,482.47	30.22	TOP STEP ALL PURPOSE 2.5/CASE #275025
2112872	13 COINS RESTAURANT	5,307.36	11464	20,482.47	37.72	QUATRAMINE 4 SANITIZER 2-2.5GAL/CASE #141-125
		13,619.47			265.92	
2112826	A T PUBLISHING & PRINTING	2,048.48	3081	2,048.48	568.45	MODEL R VACUUM CLEANER WITH DENIM BAG
	A T PUBLISHING & PRINTING	2,048.48			568.45	
2112911	A-1 BLDG MAINTENANCE	371.82	11473	7,447.54	68.85	QUINTET PAL #208-06% WAREWASH DETERGENT
2112911	A-1 BLDG MAINTENANCE	852.48	11469	7,447.54	45.31	NATURAL HELPER DEODORANT 2-2.5/CASE
2112911	A-1 BLDG MAINTENANCE	722.40	11513	7,447.54	4.88	SP USER POINT SHELF #700-805
2112911	A-1 BLDG MAINTENANCE	5,436.48	11458	7,447.54	75.53	ULTRABRITE DEGREASER 2-2.5GAL/CASE #329-125
	A-1 BLDG MAINTENANCE	7,185.18			136.57	
2112113	BENDON ACTION SERVICES	356.48	4336	20,536.34	14.48	130/6130 FACIAL TISSUE

**FIGURE 2 - MITS Report, a transactional reporting tool**

modifications for customers utilizing specific software packages.

**FRED:** It's not uncommon for our professional services staff to build one

or two of these hypercubes for a fee, and then train the customer to build more of their own. They get immediate value from the initial cubes and a template for making more in the future.

In some situations, where we are working closely with resellers, these initial pre-made cubes can be provided as a standard product by the resellers. We have success stories on our website at [www.mits.com/news-success-stories.htm](http://www.mits.com/news-success-stories.htm).

**GARY:** Once a hypercube has been created, it is easy for a user to run and modify a report. The hard work is done up front in the hypercube design.

**GARY:** MITS Report is about 30% of the effort required to get MITS Discover up and running. Since we are not defining the hypercube, we only need to select files and dictionaries we are interested in exposing. This process is similar to the first stages of a MITS Discover installation.

**SPECTRUM:** *So, learning MITS Report is a gateway to learning MITS Discover?*

**GARY:** I believe so. At a minimum, it will introduce the concepts of interactive reporting which does require a

*Continues on page 18*

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## Reporting and Business Intelligence Tools

Continued from page 17

slightly different approach to reporting. In MITS, a report designer will be more successful creating reports if they are able to consider how a user can modify reports to suit their own needs. This is a bit different than creating a canned report that suits a single user's specific needs.

**SPECTRUM:** *It sounds like partnering with other vendors is a key strategy for you.*

**FRED:** When we created MITS Report, we had in mind that it would be used by resellers to augment their existing systems. That has proven to be true as we have formed several partnerships where the reseller has done just that. By integrating MITS Report technology into their offering, they instantly provide additional benefits to their customers without diverting their engineering resources. They can concentrate on the core value of their system and "leave the reporting to us." Then, MITS Discover becomes a high-value add-on product to meet the analytical reporting needs of their larger or more sophisticated customers.

**GARY:** We have discovered that many resellers have developed their own reporting technology and found maintaining it to be a drain on their own resources. Resellers in that position are excited about using our technology to deliver meaningful reports to their users. They find customers get the best reporting solution when they are able to combine their industry knowledge with our tools to create reports.

**FRED:** At a recent trade show, a partner showed the new features of MITS Report as a part of their CRM product, and it was instrumental in helping them close more deals. The modern browser-based interface provides a nice, instant upgrade to their sys-

tem that generates excitement with customers and prospects.

In the end, it depends on the reseller's needs. While many resellers have integrated MITS Report into their existing offering, others provide MITS products through varying add-on strategies.

**SPECTRUM:** *If you had to give an end-user three reasons to buy your technology, what would you focus on?*

**FRED:** I'll take that one.

**1** Existing systems are full of information that is difficult to get to and difficult to understand. Our products are designed to make it easy to access and work with your structured, corporate data in the spirit of how Google has made it easy to find and access information on the web.

**2** Both MITS Discover and MITS Report provide users with a truly interactive reporting experience which, in turn, decreases the amount of time technical staff spends on creating custom reports.

**3** We continue to invest in the development of our products to ensure our users consistently receive the benefit of new innovations.

For resellers, the value proposition is different:

**1** We can help you freshen up the reporting portion of your application affordably while minimizing development effort and decreasing time to market.

**2** By off-loading the reporting functions, your engineering resources are able to concentrate on what they do best — maximizing the core value of your application.

**3** Highlighting the analytical benefits of MITS to executive decision makers at prospect sites enhances your total offering and leads to increased system sales.

**GARY:** From a technical perspective, by using our tools to create data structures optimized for reporting, we can help reduce the overall load on a system. As you can imagine from my earlier example, if many users are requesting information causing large files to be scanned repeatedly, overall system performance can suffer.

We've been building reporting tools for MultiValue systems for almost 11 years now, which has taught us a lot about what MultiValue databases do well and in what areas they need to be accommodated. We've engineered our tools to minimize the types of operations that are slower in MultiValue and turn them into operations that are quick. Scanning a file versus performing a read operation is one key example of how we have done this.

**FRED:** Many of us have worked at end-user sites so we understand the

frustration of the month-end reporting rush that can bring the MultiValue system to its knees. We have worked hard to solve the problems inherent in scanning MultiValue files for reporting purposes. We are proud of our accomplishments and gratified at the enthusiastic reception we get from our users.

**GARY:** When we are building our products, we try to take a good hard look at the tools at our disposal and use the right tool for the right jobs. We expect our customers will do the same.

**SPECTRUM: Which MultiValue flavors do you support?**

**GARY:** MITS Discover runs on UniData, UniVerse, D3, and jBASE, Windows and \*nix flavors. MITS Report is currently shipping for UniVerse and UniData, with D3 support just around the corner. Also, the upcoming 2.0 release of MITS Report will have native

support for Microsoft SQL Server and Oracle databases.

The primary driver for adding relational database support to the products has been the demand by our existing customers and prospects to integrate data from other non-primary databases that they use in their company. Often a company will have several other databases to store CRM or HR data that they would also like to expose using MITS. Adding support for those databases gives our customer more value out of their MITS software. [is](http://www.mits.com)

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## The Ross Morrissey Group LLC Brings Data Warehousing Design Approaches to the MultiValue Industry



Ross Morrissey, formerly Channel Solutions Architect at MultiValue business intelligence vendor MITS, is extending his business intelligence consulting practice to provide professional services and web-based training through partnerships with two MultiValue industry leaders.

Morrissey, an IBM Certified Solutions Expert – U2 Family Application Development and a TDWI Certified Business Intelligence Professional, will provide custom professional services to help C-7 Reporting Solutions, LLC. tailor analytical and operational reporting solutions for MultiValue customers. Ross Morrissey, principal consultant at The Ross Morrissey Group LLC, said, "Nobody has more experience selling advanced reporting to the MultiValue industry than C-7 Reporting Solutions, and I'm thrilled to be working with Larry Christensen again."

"Combining the talent of The Ross Morrissey Group and C-7 Reporting Solutions gives the user the ability to work with the right mix of people who understand their reporting needs and are capable of increasing their profits and decreasing costs like no other combination of companies in the market," said Larry Chris-

tensen, president of C-7 Reporting Solutions. Larry went on to say, "I have been working with Ross in varying technical and training capacities for a number of years and am delighted to cement a strategic alliance with someone who has right combination of talent, wit, and the ability to get the job done right the first time."

Morrissey brought a strong MultiValue background as well as practical experience and formal training in data warehousing to consulting and training engagements over the past several years, helping key executives and IT staff from over 100 MultiValue organizations better understand their key business processes using a dimensional modeling approach. Dimensional modeling has gained acceptance over the past decade as the standard approach to data warehousing and analytical reporting of transactions and data snapshots over time, customer, product, and other dimensions. Designs of this nature can be implemented as MITS hypercubes or form the basis for solutions in any number of mainstream and open source data warehousing environments.

The Ross Morrissey Group will collaborate with Precision Solutions, Inc to extend their

highly regarded Connect! web-based U2 training program to include business intelligence and reporting content. Dimensional modeling will be the foundation of a series of sessions on crafting analytical reporting solutions, and MITS Discover sessions will provide practical interactive training to help users get up to speed quickly. Morrissey said, "I've been referring people to Precision Solutions' training for years. I'm really looking forward to teaching using the interactive Connect! web training environment."

### For more information:

[www.rossmorrissey.com](http://www.rossmorrissey.com)

[www.c-7reporting.com](http://www.c-7reporting.com)

[www.precisionline.com](http://www.precisionline.com)

About The Ross Morrissey Group

The Ross Morrissey Group brings a mix of design consultation and training to help MultiValue professionals tailor flexible solutions and gain new insight into their business. With well-established relationships within the MultiValue industry, the Data Warehousing community, and companies at the forefront of Open Source Business Intelligence, we can help design the best solution to reporting challenges in an era where business intelligence is no longer optional. ■

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# New Products

## The Systems House, Inc. Expands Business Consulting and MultiValue Support Service Offerings



The Systems House, Inc. (TSH), a premiere full-service

MultiValue solutions provider for the Distribution marketplace, has expanded their business consulting and MultiValue support services.

Until recently, TSH's support and consulting services were reserved solely for the users of TSH's Master Distribution Systems (MDS) system.

"For those businesses who are looking for a new source of MultiValue support and development, we are offering our experience and knowledge," said Sy Fertig, president of The Systems House, Inc. "After 25-plus years in business, we have proven ourselves in the MultiValue market and have a dedicated, experienced staff available to help our customers realize their corporate goals."

Since 1979, TSH has provided responsive MultiValue-based technology solutions to the business community. Their experience — gained from over twenty five years implementing systems and providing on-going support for over 250 customers — includes a full range of business requirements, from order processing to ware-

house management, from purchasing to complete financial reporting, from EDI to eCommerce and document management.

Support service offerings include system, operating system, and database support; application development and support; and e-commerce and/or EDI integration. In addition, TSH offers business consulting to help their customers realize their corporate goals.

TSH customers benefit from

- An experienced, dedicated support team,
- Full implementation support,
- Comprehensive user training programs,
- Responsive 24/7 support, and
- A corporate philosophy that says "our word is our bond."

Businesses interested in TSH's consulting and/or support services may contact TSH for a no obligation survey and consultation

**For more information, contact Sy Fertig at 1-800-MDS-5556, x201 or visit [www.tshinc.com](http://www.tshinc.com)**

### About The Systems House, Inc

The Systems House, Inc. (TSH), formed in 1979, is a company with a long standing reputation for outstanding customer service. With in excess of 250 installed MDS clients throughout the United States and Canada, TSH is widely recognized as one of the premiere suppliers of software and computer solutions for the Distribution marketplace. TSH has made a corporate commitment to distribution, which assures our customers that the latest in technology innovation, so critical to their success in the complex and fast changing world of distribution, will be available when needed. ■



## IBM Data Server Provider for .NET and IBM Database Add-ins for Visual Studio Released for UniVerse and UniData

The IBM Data Server Provider for .NET and the IBM Database Add-Ins for Visual Studio 2005 have been released. These tools, which support IBM UniData and UniVerse (U2) as well as DB2 and Informix Dynamic Server (IDS), can be obtained at no cost from the IBM web

site titled "IBM Data Server Driver for ODBC, CLI, and .NET".

The IBM Data Server Provider for .NET is a high performance, managed ADO.NET data provider. Applications can use ADO.NET provider to connect to UniVerse and UniData, and can retrieve, manipulate, and update the data. ADO.NET supports both connected and disconnected access. For improved scalability, data processing applications running in a multi-tier environment employ disconnected access.

Please note that the ODBC and CLI drivers do not support U2.

For more information, visit [https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?!%20ang=en\\_US&source=swg-ids-docn11](https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?!%20ang=en_US&source=swg-ids-docn11) ■



## Sierra Bravo Releases Free Software to Create Desktop Widgets

Sierra Bravo announced today the release of free software for MultiValue programmers for the creation of desktop widgets.

With Bravo Dashboard, MultiValue programmers can

ask clients running MultiValue-powered businesses to realistically consider what their "dream screen" would look like. Bravo Dashboard enables MultiValue programmers to install a dashboard of widgets — dynamically creating an always-current picture of their most important business metrics.

"Sierra Bravo has a large staff of business-savvy MultiValue programmers and web nerds that love to build cool stuff," said Luke Bucklin, president of Sierra Bravo, based in Bloomington, Minnesota. "With Bravo Dashboard, we've created yet another solution to extend the vitality of MultiValue systems — and preserve our clients' existing investment in technology."

A web dashboard is:

- A collection of displays, like gauges, on a single web page.
- Each display, or widget, is an independent program designed to gather and present information.
- Widgets can be grouped on a single page to show a collection of relevant information in one place, as opposed to going to multiple different screens or printing different reports in your business system.

Bravo Dashboard is the first and only dashboard software solution to be offered free of charge, and unlike its pricey competitors, Bravo Dashboard can be shared by multiple

users rather than being tied to a single paid licensee.

While it takes a programmer with MultiValue experience to build widgets with Bravo Dashboard, these widgets are built using tools they already know how to use. This allows programmers serving MultiValue-powered companies to create useful widgets in a cost-effective manner. Each dashboard widget is created in real-time so information displayed is always current.

MultiValue-powered companies with no MultiValue programmer on staff can hire Sierra Bravo to install the free Bravo Dashboard software and begin writing programs to create attractive, data-driven portals.

About Sierra Bravo Corporation

Sierra Bravo Corporation is a software development company focused on helping organizations to improve efficiency while maximizing their investment in existing training, processes, and technology. Founded in 2003 by three innovative programmers, Sierra Bravo has grown to more than 50 people by helping companies strengthen their business through technical solutions. We provide full technology partnerships to small and medium enterprises, including web development services, custom programming, and hardware and software sales and support. If you want your organization to work smarter, work with Sierra Bravo. Visit us online at [www.sierra-bravo.com](http://www.sierra-bravo.com). ■

## Raining Data announces D3 7.5.1 for the Linux Platform



**RAINING DATA** is pleased to announce the general availability of D3 Linux 7.5.1, which is now fully certified to run on the 32-bit and 64-bit versions of Red Hat Enterprise Linux 5 (RHEL5) platform. D3 Linux 7.5.1 also includes the long-awaited fix to using tandem on SMP systems as well as additional product fixes. This release is intended for the RHEL3 (update 8 and higher), RHEL4 (update 3) or RHEL5 platforms only. Customers running D3 Linux 7.4.2 or 7.5.0 can perform an update to D3 Linux 7.5.1 with data files in place. For more information, visit [www.rainingdata.com](http://www.rainingdata.com). ■

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# Free and Upgradeable Address Verification Using Perl

BY GLEN BATCHELOR

## What do I need?

You can start off with this free Perl solution. The sample Basic code I'm providing is for D3, but you can tweak the code to run under any MultiValue flavor. The Perl script utilizes the `Scrape::USPS::ZipLookup` and `Scrape::USPS::ZipLookup::Address` modules, which submit a zip code lookup request to the `www.usps.com` web site and then scrapes the results from the HTML page.

Once you've outgrown the capabilities of `Scrape::USPS` — or the potential for breakage becomes a major issue — you can easily upgrade to a commercial SOAP web service like the Data Quality Web Service (DQWS) that Melissa DATA provides. The USPS zip lookup page can change at any time or the USPS zip lookup functionality could be removed altogether. If either of those situations happens, then the `Scrape::USPS` solution will break. The DQWS SOAP service is faster, considerably more stable, and offers a lot more data including a residential/business indicator, address type, geographical location, and delivery-point verification. You can also validate Canada postal addresses with DQWS, which is not possible with the `Scrape::USPS` modules.

The same Perl script interfacing can be used for both implementations. All you have to do is remove the `Scrape::USPS` Perl code, swap the `SOAP::Lite` module in place of the `Scrape::USPS` modules, and then follow the Perl SOAP examples that

If you send mailings, catalogs, or product within the U.S. using the postal service or parcel carriers, then you should be verifying the quality of your street addresses and postal codes. Incorrect deliveries, late deliveries, and returns can be reduced if you follow a few simple steps to clean up your address data and obtain proper Zip+4 coding.

```
perl -MCPAN -e shell
cpan> install Scrape::USPS::ZipLookup
(follow the screen prompts. perl will download the module and compile it for you)
cpan> install Scrape::USPS::ZipLookup::Address
(follow the screen prompts. perl will download the module and compile it for you)
cpan> exit
```

FIGURE 1 - How to Install the `Scrape::USPS` modules into Perl

```
perl -MCPAN -e shell
cpan>o conf init
(go through the setup questions again, but don't forget to pick different mirrors!)
cpan>exit
```

**FIGURE 2 - If mirror choice are constantly timing out, reconfigure cpan**

```
#!/usr/bin/perl
use Scrape::USPS::ZipLookup::Address;
use Scrape::USPS::ZipLookup;

# get the data from the BASIC application and trim off trailing CRLF
my $input = <STDIN>;
chop($input);
chop($input);

# split the input based on the pipe character
my @results = split(/\|/, $input);
my $company = $results[0];
my $address2 = $results[1];
my $address = $results[2];
my $city = $results[3];
my $state = $results[4];
my $zip = $results[5];

# initialize an address and ziplookup object
my $addr = Scrape::USPS::ZipLookup::Address->new($company,
    -> $address2, $address, $city, $state, $zip);
my $zlu = Scrape::USPS::ZipLookup->new();

# query the lookup site and return the results
my @matches = $zlu->std_addr($addr);

# for each address match, print the address to standard out
# separate each address by a tab so we can parse and reformat
# it in BASIC
if (@matches) {
    foreach my $match (@matches) {
        print $match->to_string;
        print "\n\t";
    }
} else {
    print "No match\n";
}
exit 0;
```

**FIGURE 3 - Sample Perl Code**

Melissa DATA provides. I put together a working DQWS tool, from my own Scrape::USPS solution, in about two hours.

Before we get started with the code, you need to install the Scrape::USPS modules into Perl. The easiest way to do this is to use the CPAN shell. Figure 1 shows how.

If you have never run the CPAN shell before, then you will be asked many

questions in order to configure it. The default responses are fine. The only choices you will really have to make are from which mirrors to download files. You can select as many as you want. I normally avoid the first few choices, since everyone usually selects those and they receive a lot of traffic. If you find that the mirror choices you made are constantly timing out, then you can go back and reconfigure CPAN with the steps shown in figure 2.

The first step in the solution is to setup a validation proxy for your Basic application. Since we're using Perl, we can use the DATA stack before an EXECUTE to send the request data to the Perl script via standard input. Similarly, we can use EXECUTE's CAPTURING clause to return the output from the script via standard output.

See figure 3 for sample Perl code and figure 4 for sample Basic code.

When you call CHECK.ADDRESS, you will get a response of "no match" if no matches were returned. Otherwise you will get a multivalued list of address data. The address data is returned as shown in figure 5.

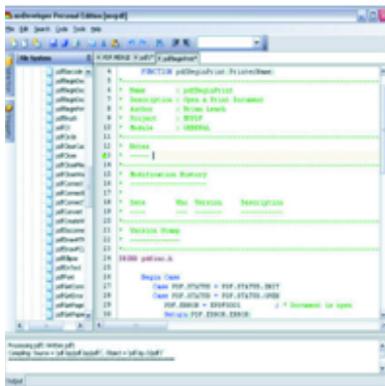
Figure 6 shows the extraction example.

If there is more than one result in the UPDATE array, then you will need to display the results and allow the user to select one of the address correction options. On occasion, a street address that requires a unit or suite number will be entered into your database. If the unit or suite number is missing, the tool will return that street address with separate odd and even unit/suite ranges. If that happens, then you will have to contact the customer and obtain the unit/suite information manually. There is no way that the address validation can know which specific unit or suite the address should reference.

Also, some physical locations will not exist in the USPS delivery and route

*Continues on page 28*

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```

!
! CHECK ADDRESS AND RETURN MATCHES IN MV ARRAY
!
SUBROUTINE CHECK.ADDRESS (COMPANY, ADDRESS1, ADDRESS2, CITY, STATE, _
                        → ZIP, UPDATE)

! clear the type ahead buffer
CLEARTYPEAHEAD=OCONV("","U000F")
CLEARTYPEAHEAD=OCONV("","U000F")

! stack our request data to one string by concatenating each_
! piece of data with a pipe character
! this format must match the Perl script's split array
! the first entry here will be $scalar_variable[ 0]
! the second entry will be $scalar_variable[ 1]
! the third entry will be $scalar_variable[ 2]
! etc..
STDINDATA = ''
STDINDATA = COMPANY
STDINDATA := "|" : ADDRESS2
STDINDATA := "|" : ADDRESS1
STDINDATA := "|" : CITY
STDINDATA := "|" : STATE
STDINDATA := "|" : ZIP
STDINDATA := CHAR(13)

! stack the request data and execute the Perl script
! return the output to OUTPUT
DATA STDINDATA
EXECUTE "!checkaddress.pl " CAPTURING OUTPUT
!
! reformat the output based on tabs
! this will realign the data from a split and tabbed mess to a
! vertical multi-valued array
! most MV flavors convert char(13) to char(254) for the CAPTURING
! data
! the tabs are what we want to really split on, for each address
! Put each address into the UPDATE array
!
CONVERT CHAR(254) TO CHAR(253) IN OUTPUT
CONVERT CHAR(9) TO CHAR(254) IN OUTPUT
IF OUTPUT = "NO MATCH" THEN
    UPDATE = 0
    RETURN
END
LNS = DCOUNT(OUTPUT, CHAR(254))
FOR PTR = 1 TO LNS
    IF OUTPUT<PTR> = "" THEN
    END ELSE
        UPDATE<-1> = OUTPUT<PTR>
    END
NEXT PTR
CLEARTYPEAHEAD=OCONV("","U000F")
CLEARTYPEAHEAD=OCONV("","U000F")
RETURN

```

**FIGURE 4 - Sample Basic code**

```
ADDRESS:CHAR(253):ADDRESS:CHAR(253):CITY:CHAR(253):STATE:CHAR_
(253):ZIP
```

**FIGURE 5 - The address data is returned**

```
COMPANY="MyCompany"
ADDRESS1="100 Main St"
CITY="Wilmington"
STATE="NC"
ZIP="28401"
CALL
CHECK.ADDRESS (COMPANY, ADDRESS1, ADDRESS2, CITY, STATE, ZIP, UPDATE)
!
! JUST GET THE FIRST MATCH AS AN EXAMPLE
!
POINTER = 1
MYADDRESS = UPDATE<POINTER>
CONVERT CHAR(253) TO CHAR(254) IN MYADDRESS
!
! IF SLOT 5 IS EMPTY THEN THERE IS NO ADDRESS LINE 2
!
IF MYADDRESS<5> = "" THEN
    NEWADD1 = MYADDRESS<1>
    NEWCITY = MYADDRESS<2>
    NEWSTATE = MYADDRESS<3>
    NEWZIP = MYADDRESS<4>
END ELSE
    NEWADD1 = MYADDRESS<1>
    NEWADD2 = MYADDRESS<2>
    NEWCITY = MYADDRESS<3>
    NEWSTATE = MYADDRESS<4>
    NEWZIP = MYADDRESS<5>
END
```

**FIGURE 6 - Extraction example**

Visit the following web sites for more information:

For the Scrape::USPS Perl modules  
<http://search.cpan.org/~gregor/Scrape-USPS-ZipLookup-2.5/>

For the Data Quality Web Service (DQWS) from Melissa DATA  
<http://www.melissadata.com/dqt/xml.htm>

**FIGURE 7 - The Links**

## Address Verification Using Perl *Continued from page 27*

data. If the location does not accept postal mail, then it will not be found using any of the USPS-based validation services, including Melissa DATA's. Just because the address is not found by the validation doesn't mean it doesn't exist and that UPS or FedEx won't ship there. Check with the contact that provided the address. The street name could be wrong or the address could be parcel delivery only.

The final step in any data cleansing process is to weed out the exceptions and handle them manually. Sometimes you have no choice but to rely on the data source to be accurate. It is much easier to fix address data earlier at entry point, than later using a bulk cleaning tool. Remember, the more accurate your database is, the more valuable it will be to you and those who rely on your data. is



**GLEN BATCHELOR**

is the IT Director at All-Spec Industries, Inc., a

stocking distributor for various industries including electronics rework/assembly, manufacturing, and telecom/datacom. Glen has been working as a full-time MultiValue developer for 11 years. He lives and works in Wilmington, NC with his wife and twin daughters. You can find Glen on many users mailing lists, the comp.data.base.pick newsgroup, several IRC chat rooms, and occasionally in person at a Spectrum conference.

# IT Planning: MIS Business Process

I've spilled a lot of digital ink talking about how IT needs to deeply understand business processes. This time I want to talk about IT as a business process. Whether you are an internal department or an external technology firm, we have to manage the business of business in addition to doing the business of being technologists.

By focusing on the technology, I failed to do my job as a business analyst. Sometimes we can't hear our own common sense over the sound of our propellers.

## **MISc**

When other departments aren't sure who a project part belongs to, they usually send it to MIS. While this might seem to be an odd event, it is both common and completely explainable. Most of these MISc. items are glue functions, things which fall between job descriptions. Much of what we do as professionals qualifies as glue. We link the web store to accounting. We link the customer orders to production planning. We link the divisional system to corporate. In short, while many of us think of ourselves as coders, designers, or inventors, we are — to the business at large — the glue people.

So, our planning needs to encompass more than computers, as if that category wasn't broad enough. On that point, I need to make a plea on behalf of the users. Please note: they don't know that programmers usually don't fix hardware. They don't know that hardware experts often aren't networking specialists. The fact that you are sitting on a Mac talking exclusively to Linux and Unix servers will not stop them from asking you why Vista is so slow on their home machine. It is our lot in life to accept this fact gracefully. It won't be changing any time soon.

## **Physics for Poets / Rocks for Jocks**

There are college courses which attempt to make scientific subjects more accessible to students of other mind-sets. Many of us have developed the same skill in order to convey the facts we need to pass along to the less technically-oriented. In planning our work, we need to think of projects in the same less-technical format, because it helps us to redefine a project in terms of dependencies.

When I have my propeller whirring on my hat, I can often think of deadlines based on the technologic hurdles only, not the other aspects. Having the web site ready,

technically, six months before the content is ready, isn't good planning. By thinking in the terms needed to explain a project outside of your group, you start thinking about the groups outside of your project.

I recently was asked about the feasibility of a project and immediately launched into a series of questions which revealed that automating the current manual process would be easy. The gentleman next to me at the meeting leaned over and pointed out that the person in the middle, whom I was coding around, was also acting as a security checkpoint authorizing who could initiate a request. Automate the system and the person in the middle — the only meaningful point of security — vanishes. Oops.

Having beaten the drum over security issues with the same client for the past year, I was more than a little embarrassed. By focusing on the technology, I

failed to do my job as a business analyst. Sometimes we can't hear our own common sense over the sound of our propellers.

As bad as this event might seem, it was caught early. In planning projects, we sometimes can get fairly far down the road before our *Oops* moment. So, working through a project in generally accessible language, and seeing your project — whether you are an internal staffer or an outside firm — as part of the whole, allows you to plan in coordination and consideration of others. I may be a glue person, but I never want to be the one who gums up the works.

#### **Responsibility without Authority**

So, if my scope is wide and my projects are connected to other groups by timing and purpose, I have to see all my planning as infrastructure planning. This makes our group function more like Capital Projects (discussed last issue) than like most other parts of the busi-

ness. We tinker with the inner core of the business for a living. It is not glamorous — engineering rarely is — but it allows us the opportunity to make huge progress or create huge damage.

An example of damage — we are the accidental agents of policy in many cases. My Grandfather used to say, "Did you stop beating your wife, yes or no?" Obviously, if you have never beat your wife or you have no wife (and I hope all of my readership falls in to one of those categories), you cannot usefully answer within the parameters. Literally, my answer is no, because I can't stop doing what I haven't started to do. Rationally, the answer is yes because I am not presently doing anything of the sort. While this is an extreme case, we are always putting up prompts with limits on what constitutes a valid answer.

So, as the corporation gathers facts (input), distributes those facts (reports

*Continues on page 32*

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## IT Planning

Continued from page 31

and inquiries), and keeps the same facts (data warehousing and data retention), we have a lot of responsibility to the infrastructure which assures the validity of those precious facts.

The catch is that while we do not dictate the course, we are obligated to prepare the way. This complicates planning because it accepts that our department does not have control of our department's plan. Our work is the end result of compiling the needs and plans of others. Every department can claim this to some degree, but we are probably the second or third place winners on this point. Ahead of us are usually accounting and personnel, both of whom tend to have all of our pressures, plus more governmental oversight than MIS usually receives. We get a touch of that giant hand in the form of SOX and other initiatives

worldwide, but the touch we get is gentle compared to the one they feel.

### Why Plan?

If everyone has a finger in our plans and business realities can wrench things sideways, why bother to plan? We'll tackle that question next installment.



**CHARLES BAROUCH** is the CTO for Key Ally, Inc. He is also Past President of the U2UG and a regular Spectrum Magazine contributor.

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Consulting: (718) 762-3884x1

## A QUICK SIDE NOTE

I recently went hunting on YouTube and was surprised to find videos featuring Bob Orsini of Revelation Software. It drives home the idea that new technology isn't just about hooking up the new things to your existing technology. It can be about marketing, mind-share, and training. I asked Mike Ruane where he got the idea to start putting OpenInsight training videos onto YouTube. He said "I like MGB's — the cars — and I was watching a tune-up video on YouTube and I thought to myself, if I like getting training this way, OpenInsight users might like it, too."

With my eyes newly opened, I found IBM podcasts and all sorts of other resources. Sometime we have to stop being technologist who use our technology for just long enough to be users of the technologies already provided to us by others.

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# Revelation OpenInsight *and* IBM U2

**Combining Revelation and U2 products opens interesting possibilities for client/server and distributed processing. For this article, I explored this potential with a simple client-server application I created using an IBM UniVerse application in the server role and a Revelation OpenInsight application as the client. I am intrigued and excited by the possibilities this combination offers.**

**In this article, I will discuss what I learned from the exercise, including the power of the model-view-controller approach, the role of the client and server, some thoughts about how traditional desktop clients and browser-based views complement each other, and some thoughts about how to exploit the strengths of MultiValue in this situation.**

■

A good way to exploit the power of the MultiValue architecture is to think of the dictionaries as the controller.

■

### **The Example**

I decided to create a generic task resolution system.

#### *Entities:*

- Customer
- Tasks
- Reps

#### *Rules:*

- Clients create tasks using a web site, phone, e-mail, or whatever.
- Reps are assigned Tasks based on customer preference, rep availability, and so forth.
- Issues are prioritized by age and client type.
- Reps need a list of tasks in priority order.
- The Reps may need to call, e-mail, or provide remote desktop support.
- Reps must close a task when it is complete.

#### *Technology*

- An IBM UniVerse server will store the data.
- An OpenInsight rich client will support the service reps.
- The web piece is out of scope for this article.

## The Result

The result is shown in Figure 1. It comprises a list view which refreshes on a regular basis, a detail screen which lets the rep work the list, and an overall frame with traditional Windows menus. When a rep completes working an issue, the system moves to the next issue in the list. The client system polls the server for the list of tasks. The server answers with a list of tasks in priority order. I won't pretend that this is a fully functional system, but creating even this simple application provided good insight into some of the issues and opportunities afforded by Multi-Value client server programming.

## The Approach

I tried to follow a model-view-controller approach, which is a common paradigm for distributed systems. The model-view-controller approach is a way of thinking of your application in three layers: the model corresponds to the data, the controller corresponds to the business logic, and the view corresponds to the manner in which the client interacts with the application. In non-MultiValue environments, model-view-controller often maps to an SQL database, a Java application server, and a Java or web client. Since a different technology is required for each layer, the discipline of model-view-controller is a necessity.

Many of us use tools which easily perform the roles of model, view, and controller, so we are not forced to partition our applications into these layers. Model-view-controller (MVC) is a useful approach, even if you have a tool which does not require it, so I used it here. MVC is a child of the Object Oriented school of programming. I am not an OO purist and my tools are not OO tools; perhaps I should say I used an MVC-inspired approach.

## The Model

I created three tables: Tasks, Clients, and Reps. Each table has an ID and one or two fields.

*Continues on page 36*



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FIGURE 1 - The end result

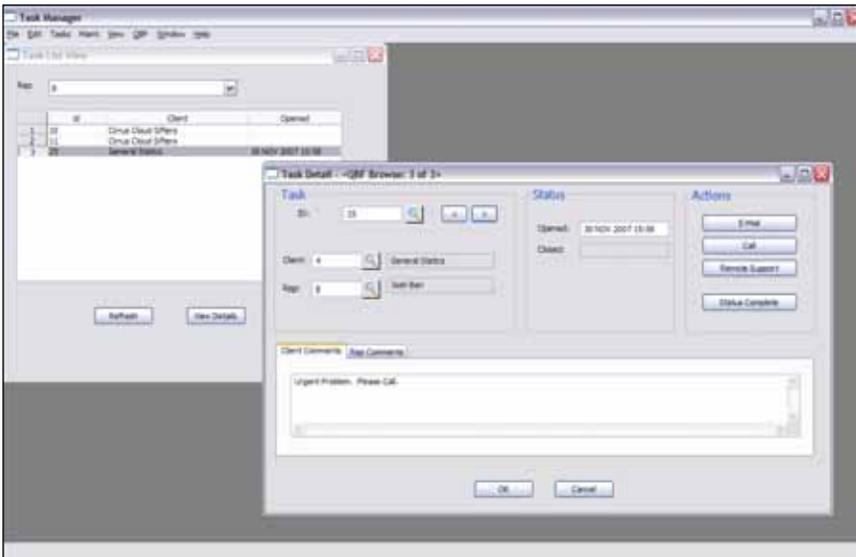


FIGURE 2 - The tasks\_controller object on the server

**The Controller**

I identified some application-specific functions belonging in the controller layer. The list of available reps, creating tasks, the current list of tasks assigned to each rep, and the distribution of tasks all belong to the server. I created a program on the server to perform these tasks. The program has no visual output. It communicates using lists of keys. The viewer calls a function on the controller, for instance, REFRESH, and gets a list of keys. The viewer can then read the records and format them

as needed. This approach makes for a very simple controller interface. Figure 2 shows a simple select statement as the rule for determining the tasks assigned to a Rep. If I change complex rules for distributing tasks, the controller program grows larger, but the interface stays simple. The Controller does not know how the viewer will use the data, or even which viewer is using the data. Thus, multiple views of the data can use the same controller. A web client could use the same controller. I could use a calculated column or correlative to call this same program, so that a report of tasks sorted by Rep will exactly match the task list screen.

This ability to bind calculated columns to the controller is a powerful feature of MultiValue systems. I believe that a good way to exploit the power of the MultiValue architecture is to think of

the dictionaries as the controller. Store the business logic directly in calculated columns, or indirectly via controller programs called by calculated columns. This approach means all views implement the business rules consistently. You might state “I wrote my application that way twenty years ago!” Indeed, the more completely your application implements dictionary-based controllers, the better positioned you are to have that application consumed by viewers from traditional screens to web applications to technologies which do not exist yet.

**The View**

I implemented the Rep’s view in OpenInsight. OpenInsight creates traditional Windows desktop applications. Traditional Windows applications use a fat client and event-based programming to provide a full featured, highly customized environment which enables a worker to accomplish tasks with no wasted effort. A user interacting with the application triggers events, and an event handler controls the response to the events.

OpenInsight provides a terrific environment for developing these applications. (I am a Revelation employee after all.) The model-view-controller approach has long been used for writing event handlers. Developers usually write a single program called a commuter module which is called by all events on the window. In event-based programming, multiple events may trigger the same response. The event handler brokers the events and responses. For example, Figure 3 shows that I need to refresh the window when the timer fires every few minutes or when the user changes the window, or when the user clicks the Refresh button on the window.

**Crossing the Great Divide**

I’ve discussed the server-side and the client-side view; now it is time to tie them together. Figure 4 shows how the viewer implements a refresh. The viewer employs the OpenInsight U2\_SUB-

FIGURE 3 - Multiple events, same response

```

retval = 0
begin case
Case method _eqc 'TIMER' ; Gosub Refresh
Case method _eqc 'CHANGED' ; Gosub Refresh
Case method _eqc 'REFRESH' ; Gosub Refresh
Case method _eqc 'VIEW_DETAILS' ; Gosub View_Details
Case method _eqc 'CREATE' ; Gosub Create
Case Otherwise$
    retval = Examples_Standard_Events(CtrlEntId, Method, Par
End case

return retval
***

```

FIGURE 4 - The server owns the data, the viewer formats it

```

Refresh:
* Get Tasks for this rep
* Note, just get the ids, can read records as needed
rep = Get_Property(@window:'.REP', 'TEXT')
p1='';p2='';p3='';p4='';ids = '';err = ''
call U2_SubCall('', 'TASKS_CONTROLLER', 7, 'REFRESH', |
    rep, P2, P3, P4, IDS, ERR )

Convert @fm To @vm In ids
array =
array<1> = ids
array<2> = Xlate('TASKS', ids, 'CLIENT_NAME', 'X')
array<3> = Oconv(Xlate('TASKS', ids, 'OPENED', 'X'), 'DT')
Set_Property(@window:'.TASKS', 'ARRAY',array)

Return

```

FIGURE 5 - Defaulting the key from the server

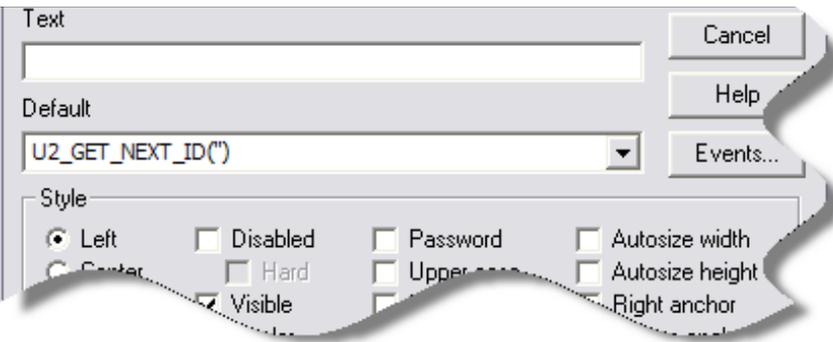
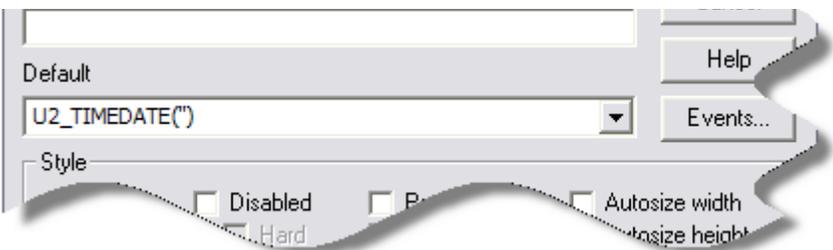


FIGURE 6 - Defaulting the time stamp from the server



CALL function to call the REFRESH method of TASKS\_CONTROLLER on the server, then formats the results to be viewed in the client. Note that I am using Xlate, which is OpenInsight's implementation of the translate or lookup function, to read details from the server. Note too that I have the Xlate function call named fields from the dictionary, rather than numbered

positions. I could have added a method to the controller program to have it return the detail data instead of just the keys. I did not do that because that would couple the tasks controller too tightly to this view. I could have used numbered field positions in the Xlate statement. I did not do that because it would have coupled the viewer too tightly to the physical model of the

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data. Using simple translates which pass through the dictionary exploits the power of the MultiValue architecture. My view is still controlled by business rules, but I am not hand-crafting code to pack and unpack data. I can change the programs on the server, the dictionary, or the viewer independently; my changes flow through.

**Shortcuts**

In some situations, the model-view-controller architecture is overkill. For example, sequential counters and time stamps need to come from the server. The OpenInsight form designer has fill-in-the-blank hooks for providing default values. I wrote generic functions for sequential counters and time stamps, rather than driving through the controllers. Figures 5 and 6 show examples of getting a default key or time stamp.

**Shouldn't I go directly to the web?**

Could I implement the entire application in a web browser? Probably. However, the specification called for interacting with the corporate e-mail and VOIP networks. Web browsers are usually walled off from these tools. Traditional Windows applications are well suited for an environment where there will be heavy interaction with other tools on the user's desktop. On the other hand, my specification assumed a browser-based view for those clients.

Could I service those clients with OpenInsight? Sure. Products like

*Continues on page 45*

# Bridging Technologies between MultiValue ERP *and* Office Applications

**In this third article in SDSI's series exploring aspects and issues of Document Management for the MultiValue community, we talk about another bridging of technologies: your MultiValue ERP applications with Office Productivity applications, like spreadsheets, word processing, e-mail clients, and the like.**

Compared with ERP-generated trade documents, these other office documents are usually looked at as being outside the control or realm of your MultiValue ERP application, but now, using an office automation software tool like SDSI's sdOffice (Fig. 1), can be created programmatically from within the MultiValue environment.

Using spreadsheets as an example, *report mining* is a typical application where raw ERP data needs to get transformed into a revised and formatted office document. Report mining/data analysis is a technology represented in the industry by a relatively small number of software development companies, and is not usually brought under

the umbrella of enterprise content management (ECM) or under its document management subheading. But to a large degree, report mining tools are used to create new documents in the office productivity suite area of the network and involve varying levels of human interaction and manipulation in the process.

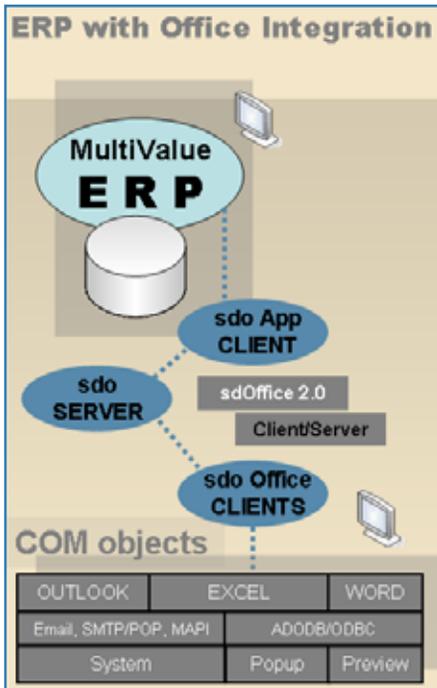
As a result, office document creation by an ERP application using an integrated client/server automation tool like SDSI's sdOffice carries with it a sense of synergy, specifically in the context of full document management. Synergy implies efficiency. And improving efficiency in an enterprise is usually what drives the acquisition of new IT technologies.

The first two articles in this series focused on document management from a delivery and archiving perspective and integration with a MultiValue ERP application. The direction in this article involves combining and integrating together what are usually distinct technology concepts that are not so far apart, especially when considered holistically under the broad heading of Document Management.

A unique and interesting twist to considering these two distinct technologies, specifically when considering deployment of SDSI's set of tools, is that the ERP-driven documents created with sdOffice can be automatically

**sdOffice version 2** is a platform-independent, language-independent, client-server-based software tool. sdOffice gives programmers and developers the ability to integrate non-Windows applications with the Microsoft Office suite of programs, as well as other Windows-based programs. Using sdOffice to interface with Windows-based programs can enable productivity-enhancing and efficiency-boosting results which help streamline office management and control.

**FIGURE 1 • So, what is sdOffice?**



**FIGURE 2 - An overview of the relationships and flow of data from an ERP application through sdoOffice to Office applications.**

archived during the creation process and become a part of the same archive library where other ERP-generated documents are being stored. As a result, relationships between documents using links and categories can be seamlessly maintained, which can increase the efficiency of later document retrieval out of the archives.

In looking at Figure 2, an example probably best describes the process. If you look at all the COM objects depicted in Figure 2, you can see that sdoOffice drives a number of different Office tools. Excel spreadsheets are probably one of the most frequent targets of bridge technology automation, so we'll use a report mining example that involves a spreadsheet.

This example is taken from a large sdoOffice user with manufacturing facilities throughout the United States. They created a whole new printing paradigm using sdoOffice for reports coming out of their ERP application that streamlined

manual spreadsheet manipulation and automated report delivery through Microsoft Outlook, resulting in tremendous savings. (For more information, see the detailed article on SDSI's website referenced at the end of this article.) Choosing one of the specific report automations that they have implemented — Budget Sales Analysis —, we'll see how it works:

Budget Sales Analysis is an unattended, automated weekly sales report that e-mails 21 different salespeople their sales results for the week by customer and budget category, and then e-mails a consolidated spreadsheet to senior management. The weekly sales reports are launched automatically every Saturday morning.

The 21 salespeople are e-mailed a detailed spreadsheet showing only their own results. Selected senior management and other personnel are e-mailed the consolidated

*Continues on page 40*

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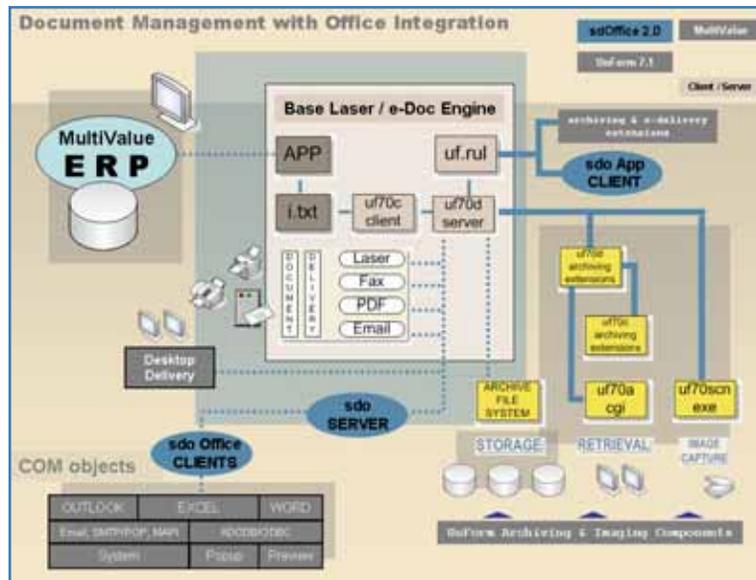


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## Bridging Technologies *Continued from page 39*



**FIGURE 3 -** The relationships and data flow for an ERP application configured to feed a document management system which includes an integrated Office Automation component.

spreadsheet. A data file contains the recipient list for both versions of the report.

The salesperson spreadsheet has three tabs: year-to-date, period-to-date, and special products. Each tab has left-hand columns for salesperson name and customer name, then three columns for customer totals: To-Date Sales, To-Date Budget and Percent of Budget. To the right of those columns are nine sets of the same three To-Date columns listed previously, one for each Budget Category. The special products tab has a slightly different format. As new budget categories are added the spreadsheets dynamically adjust themselves for the new columnar data. The Excel subtotal command is used to generate subtotals, which is useful on the executive consolidation report to collapse and expand the rows to drill down in the level of detail being viewed.

### Slice and Dice

What we're talking about here is often referred to by financial personnel as the process of "Slice and Dice." The term refers to retrieving data from an

ERP application and, using a spreadsheet, manually breaking down the imported data until it is in a format and at a detail level that is desired. This is usually done to present results or conclusions to upper management and aid in the decision-making process at the same or higher levels in the organization.

### Push versus Pull

The semi-automated process that was replaced by the sdOffice process in our example was one that required use of a "report scraping tool", as the company referred to it. It was used to pull and convert the source report out of the ERP application into a CSV file and transfer it to Excel. The process — requiring at least a dozen steps when you include formatting and delivery — was reduced to just two steps.

A "pull" operation to get ERP data into an analysis tool can be completely manual or semi-automated (like the process that sdOffice replaced in the above example), or highly automated using ODBC and complicated VBA macros. All of these involve a "pull" out to the ERP application.

With sdOffice, such operations can be performed under program control

from a host application using live data. This we call a “push” operation, because the host application is now pushing data out from its domain to the target application at the other end of the bridge.

Because sdOffice operates at the level of feeding data directly to COM objects using their own APIs, its command set allows for a level of control that can completely eliminate all human intervention in the bridging process. In the spreadsheet example, all of the spreadsheet formatting commands — the kinds of operations performed manually inside the spreadsheet or sometimes automated in macros — are pre-programmed and become a part of the script dialogue between sdOffice and the COM object.

#### Office Automation and Document Management

The earlier example was in the context of a report coming directly out of the ERP application, where an integrator

---

The process —  
requiring at least  
a dozen  
steps when you include  
formatting and  
delivery — was reduced  
to just two steps.

---

has built the client application hooks that drive sdOffice directly into the ERP application, which can be achieved using various methods.

With the 7.1 release of SDSI’s UnForm document management solution, an sdOffice application client command set has been included as a rule-set feature in UnForm so that print streams being sent through UnForm can trigger sdOffice Office document events.

One of the primary benefits of this, compared with driving sdOffice documents directly from the ERP application, is being able to work within an established rule-set design IDE to configure sdOffice documents and avoid having to embed any coding in the ERP application itself.

Figure 3 (pg 40) shows a graphic depiction of the relationships and data flow for an ERP application which has been configured to feed a document management system which includes an integrated Office Automation component.

*Continues on page 44*

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# “Widget see is widget get” or “Widget talking about, Willis?”

It was a dark and stormy night...  
Once upon a time...  
... and they lived happily ever after.

Some stories start and end rather predictably. There's a look and sound that's familiar, and unfortunately that familiarity is not a good thing.

But software can be remarkably productive when broken down into small, recognizable, and redeployable chunks. A few years ago, I wrote about the rise of web-based services and the modern compartmentalization of functionality. The software did the same predictable things as the old code except the called routines were executed from the web, rather than from the MultiValue environment. Whereas reused stories may cause boredom to dark and stormy nights, repackaged software just looks dependable and useful.

Long-time coders know and appreciate the benefit of using and re-using software code. In the world of Basic, we call them subroutines. In today's web world, such modularity has been deployed as “web services.” You use a specific HTTP-based program with its own URL. Given a well-defined set of inputs, you get a well-defined set of outputs or actions. Surprisingly, helpful bits of modularity have found their way into HTML and web pages.

Many are familiar with modularity of HTML code, as delivered by advertisers and commercial partners. At first, they shared graphics, but soon began sharing snippets of HTML. The HTML often had JavaScript included to create a more

dynamic interactivity between the HTML page and the advertiser.

Today, we see this web modularity making its way into popular web sites. These snippets of code are often called *widgets*. In many Webonomics articles of the past, I have used the term *widgets*; but, in those

situations, I was referring to thingamobobbers, whatchamacal-lits, and thisandthats. General, generic, and vague.

Web widgets today are rather specific. People began to realize that the snippets of code could do more than just carry advertising. By installing and executing the JavaScript, Flash, or DHTML on a multitude of sites, you can deliver data, reports, binaries, and more.

If the term widget seems like a hip way to say web-subroutine, you could refer to them by other nicknames, such as gadgets, modules, and capsules. No matter what you call them, the point is they are predictable, re-usable, and functional. And though the sizzling attention given to them makes them appear sexy, highly useful — albeit boring — uses are abound.

Subroutines can be more than just boring?

Apparently so. Widgets are hot. Moreover, they're hot on the hottest sites today — social network sites. For example, a small but popular music site, iLike, has seen its user counts explode since hugely popular Facebook opened its web site to external widgets. Registered users at iLike was under 3 million this summer and has been growing at 3 million each month since Facebook's change. Registered users can easily share their iTunes playlists and get local concert updates right from their Facebook pages.

No matter what you call them, the point is they are predictable, re-usable, and functional.

But Facebook isn't the only place encouraging the spread of widgets. MySpace has made it easier for people to post pictures and notes on virtual personal bulletin boards, again thanks to widgets. Google's gadgets make their Google Apps site highly helpful. Google prefers the term gadget to widget, because of the e-literation. You can get gadgets that offer sticky notes, eBay searches, and calendars.

And yes, Virginia, widgets are starting to appear on cell phones.

In Figure 1, I've included the code to a very simple Google gadget, just to illustrate the ease by which you can embed your HTML in someone else's web page. It's a small link to a web site. You can see the gadget by merely using the URL "http://www.eriscorp.com/googlegadget.xml". In most browsers, the XML will be rendered like a nested outline.

You can add this URL through iGoogle (formerly Google Personal Start Page). Just click on "Add stuff", click on "Add RSS" and then enter the URL. You will be warned that the link was not written by Google. Of course not! I wrote it. We all can write gadgets. If you trust who wrote the gadget (trust me!), click on "Yes". You should be able to see the gadget in action.

The gadget itself is merely XML. It identifies a module, and within the module I can include a URL. I can also include HTML itself. The gadget syntax is documented by Google and you can write some fun, robust tools. We at Eagle Rock have been deploying gadgets internally, creating portals with reports and objects that are user configured.

So, as you walk through the webscape today, picture this. Sicily, 2008. A small village girl wanders along the winding cobblestone, searching for the

local mercato, when she pulls out her cell phone, uses a Navigation widget to not only find the store, but get the latest news on Brad and Angelina.

... and she lived happily ever after...

... or did she? is



**MELVIN M. SORIANO** works at Eagle Rock Information Systems (ERIS), an Internet Application Service Provider and WebWizard/MultiValue Developer. ERIS has deployed enterprise-wide solutions on most MultiValue platforms and operating systems. HTM-Mel can be contacted at [mel@eriscorp.com](mailto:mel@eriscorp.com) and visited at [www.eriscorp.com](http://www.eriscorp.com). You can always call him directly at ERIS's Pasadena, Calif., offices: (626) 535-9658.

```
<?xml version="1.0" encoding="UTF-8"?>
<Module>
  <ModulePrefs author="EagleRockInformationSystems"
    author_email="mel+spectrum@eriscorp.com"
    description="SampleGoogleGadget"
    directory_title="WebWizard Webonomics"
    height="110"
    render_inline="never"
    title="WebWizard Webonomics"
    title_url="http://www.eriscorp.com">
  </ModulePrefs>
  <Content type="url" href="http://www.eriscorp.com/gadget.htm"/>
</Module>
```

**FIGURE 1** Sample code for a simple Google gadget

## Bridging Technologies

Continued from page 41

A second major benefit is the simultaneous access it gives you to the UnForm document archiving system. It is a pretty good assumption that many of the Office documents that might be created using sdOffice are documents that could benefit from being stored and managed by the same system which manages ERP application trade and related scanned documents.

This ability to integrate laser forms (e-Docs for fax and e-mail, document archiving, retrieval, and imaging) with Office document automation is a powerful and unique set of capabilities.

When you consider the non-intrusiveness to the ERP application of the UnForm and sdOffice client/server models, you can see that an integrator is free to configure and maintain impor-

tant system applications and components independently. This is done while still enjoying the benefits from tightly coupled bridge technologies.

### The Document Management Perspective

Whether in the field of science, technology, business, the arts, or education, at the root of all human progress is the concept of moving forward in a way that maximizes efficiency. Every organization has key players tasked with guiding the organization forward with simultaneous views of short, medium, and long-term strategies for success and improvement. Many of those strategies revolve around eliminating waste and increasing productivity and efficiency. And many of those strategies involve IT Technology has

brought us to a place where “the document” — the central vehicle for communication between organizations and entities — can be managed electronically to provide efficiencies that can allow organizations to devote more resources to the truly productive, non-administrative activities they engage in.

We invite you to visit [www.uniform.com](http://www.uniform.com) for more information about sdOffice, UnForm, and SDSI's other products. While you're there, see the News Pages link [www.uniform.com/newspages](http://www.uniform.com/newspages) and take a look at the 2006 3rd Quarter article on the sdOffice implementation used as an example in this article. Also see the lead article on document management in the 2nd Quarter 2007 issue. There are links to related articles and resources there. [is](#)

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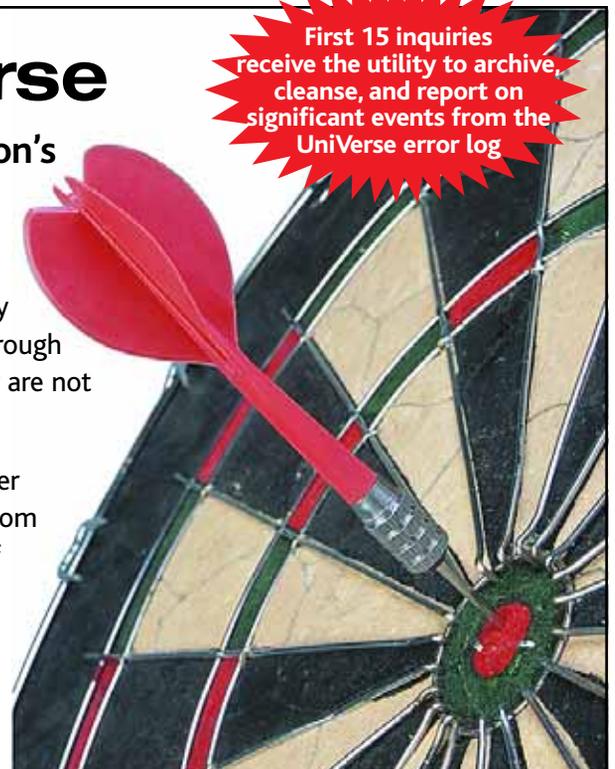
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## Distributed Computing

*Continued from page 37*

Microsoft's Terminal Server, or the 2X thin client server ([www.2x.com](http://www.2x.com)) make it possible to serve traditional Windows clients to remote users across the web. However, the terminal server client may cause warning messages to appear on the user's machine when they first use it.

I have decided that traditional and browser views complement each other. The traditional view is best for a situation where there is a trust environment, for example, a power user authenticated on the corporate network. Your application trusts the user; the user trusts the application. The web view is best where there is less trust. In this view, you do not trust the user with full control of the application and the user does not trust you with full control of the desktop.

Oddly enough, geography is not a determining factor. Thin client technologies mean you can distribute traditional desktop applications as broadly as you can distribute web desktop applications. Choose your view based on your trust relationship, not your distance to the user.

### Conclusion

I have tried to show some of the issues and opportunities presented by client/server development using Revelation's OpenInsight and IBM's U2 products. While I used these products because I know and like them, I believe that the same concepts, especially layering in a model-view-controller paradigm and exploiting the dictionary as a default controller, apply to any MultiValue product. Other features, such as the ability to use OpenInsight to edit server or client dictionaries and programs or to use standard file operations to move data between client and server, are specific to this toolkit. I was pleased with what I could accomplish in a day and feel there is a lot of potential. *is*

## Customer's Hero

*Continued from page 13*

have compromised their integrity and career. Not a recipe for goodwill. When you follow through, you are not only looking good, but your customer is looking good too.

### Follow Up

Follow up with your customers. Give them a call or shoot them an e-mail. Make sure the solutions you created are working for them. Ask them about how things are going. Check to see if there is anything you can do for them. Build relationships. Let them know that you are there for them if they need help.

### Heroism 101

Becoming a customer-centric IT professional is a journey. None of us are perfect; we are human. If you recognize an area above that you need to grow in, spend some time working on that area. Become your customer's hero in that one area. When you master that, pick another area to work on. It's a fun journey and being a hero has great perks!

If you are interested in growing your customer service skills, please join me for the Art of Customer Service session at the International Spectrum Conference, March 30-April 4th. *is*

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## Clif Notes

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and has given the latter a name to differentiate it from the medical condition. He calls it ADT—Attention Deficit Trait.

Research has shown that as the number of tasks being juggled increases, productivity goes down, stress goes up. As IT workers, we know this. When it happens to one of our servers we call it "thrashing." And when it comes to the cognitive part of our brains, we don't have multi-core processors. We're pretty much wired single-threaded.

So what is the toll of encouraging ADT? I suppose a lot of people will ignore the stress and health factors. We seem to be in a culture of treating people, excuse me, "resources", as interchangeable and expendable. But let's put a money figure on it.

One study found that interruptions and the recovery time from interruptions consumed an average of 2.1 hours a day. That leads to an estimated yearly cost to the U.S. economy of \$588 billion. Those of you who are managers might want to do a quick calculation of the cost to your department of losing 25 to 30% of your employee's workday before insisting everyone have IM running all the time.

What's the solution to the problems caused by multitasking craziness? Simple. Stop doing it. Give yourself (or your employees) a break. Set aside some time each day when you will shutdown all other activities, declare "Do Not Disturb," and focus all of your attention on the one "must do" task. It is naive to think that we can avoid interruptions all day, especially in a business culture that encourages or even insists on ADT behavior. But if you can reclaim even one of those two lost hours each day, you will be amazed at the productivity boost.

At the very least, take that silly thing out of your ear when you go to the restroom. This is not Star Trek, and you are not Lieutenant Ohura or Mr. Spock. *is*

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(All questions must be answered. Incomplete forms will not be processed. Complimentary subscriptions are limited to U.S. addresses.)

**1. What is your job function/title?**

- |   |   |
|---|---|
| <input type="checkbox"/> Principal/Owner      | <input type="checkbox"/> Sales/Marketing    |
| <input type="checkbox"/> President/GM/CEO     | <input type="checkbox"/> Programmer/Analyst |
| <input type="checkbox"/> MIS/DP Manager       | <input type="checkbox"/> Purchasing         |
| <input type="checkbox"/> Controller/Financial | <input type="checkbox"/> Consultant         |
| <input type="checkbox"/> VP/Department Head   | <input type="checkbox"/> Other _____        |

**2. Is your company a (check one):**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Computer System Supplier | <input type="checkbox"/> Dealer/OEM/VAR | <input type="checkbox"/> Software House |
| <input type="checkbox"/> Consultant               | <input type="checkbox"/> End User       | <input type="checkbox"/> Other _____    |

**3. What MultiValue Databases does your company use? (check all that apply)**

- |                                |  |                                   |                                      |
|--------------------------------|--|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> D3    | <input type="checkbox"/> Native MultiValue | <input type="checkbox"/> Reality  | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> jBASE | <input type="checkbox"/> uniData           | <input type="checkbox"/> UniVerse | <input type="checkbox"/> uniVision   |

**5. What major business/industry most clearly describes your company?**

- |  |                                    |   |                                 |
|--|------------------------------------|---|---------------------------------|
| <input type="checkbox"/> Accounting      | <input type="checkbox"/> Medical   | <input type="checkbox"/> Direct Marketing | <input type="checkbox"/> Legal  |
| <input type="checkbox"/> Banking/Finance | <input type="checkbox"/> Dental    | <input type="checkbox"/> Construction     | <input type="checkbox"/> Retail |
| <input type="checkbox"/> Education       | <input type="checkbox"/> Insurance | <input type="checkbox"/> Other _____      |                                 |

**6. What are your firm's approximate gross annual sales?**

- |   |  |
|---|--|
| <input type="checkbox"/> Under \$500,000                    | <input type="checkbox"/> \$500,000 - \$1 million           |
| <input type="checkbox"/> Over \$1 million - \$5 million     | <input type="checkbox"/> Over \$5 million - \$10 million   |
| <input type="checkbox"/> Over \$10 million - \$25 million   | <input type="checkbox"/> Over \$25 million - \$100 million |
| <input type="checkbox"/> Over \$100 million - \$500 million | <input type="checkbox"/> Over \$500 million                |

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Clif Notes *Continued from page 47*

ADD as paraphrased from the DSM-IV (the diagnostic manual for mental health professionals). Does this remind you of anyone you know, maybe even you?

- Often does not give close attention to details or makes careless mistakes in work, or other activities. (Ever see those READ statements with an ELSE NULL clause? Or READU statements with no LOCKED clause?)

- Often has trouble keeping attention on tasks. (Writing code, reading e-mail, and replying to instant messaging all at the same time. Some people click around amongst their various application windows so furiously you'd think they were playing Wack-a-Mole.)

- Often does not seem to listen when spoken to directly. (Don't you love it when you are trying to have a discussion with someone and they keep pulling out their CrackBerry to check messages?)

- Often has trouble organizing activities. (Quick. Show me your written list of the top four tasks you expect to complete today.)

- Often avoids, dislikes, or doesn't want to do things that take a lot of mental effort for a long period of time. (Two words: "Maintenance Programming.")

- Often easily distracted. (Look at all those people walking around with Bluetooth cell phone headsets permanently stuck in their ears so they can immediately interrupt themselves to answer a call. And, you have to wonder about some people when you hear one side of a phone conversation coming from one of the stalls in the restroom. Now that's being easily distracted!)

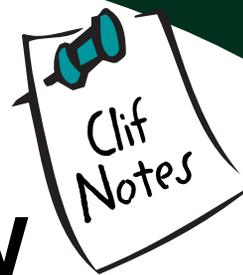
- Often forgetful in daily activities. (Oh, dang! Late for another meeting.)

Psychiatrist Dr. Edward Hallowell notes the similarities between medical ADD and culture-induced multitasking craziness, including similar consequences,

*Continues on page 45*

# Multitasking Our Way To Mediocrity

BY CLIFTON OLIVER



I guess I am a heretic.

I sit here writing this column with no one else in the house. The television is turned off; so is the radio. I am not listening to my iPod. I do not have instant messaging turned on, e-mail is not running, and I do not have a phone in the room with me. I am even using a program that blacks out the entire screen so all I see are these words. That's it — me, the words, and my mental awareness of you, my reader. Not even a task bar to distract me. In other words, I am committing one of the greatest heresies anyone in modern business society can commit.

I am refusing to multitask.

That's right. I am purposely single-tasking. It's a wonderful, giddy experience. It feels a bit naughty, maybe even illegal. But this week I am hidden in Louisiana bayou country where the Productivity Police will never find me, so I can get away with it without fear of being rounded up for a compulsory trip to the Better Business Behavior Boot Camp. Why risk it? Simple. By rejecting the most common technique for high productivity, I become much more productive.

Two or three years ago, I started seeing comments in articles to the effect that every time you are interrupted, it takes 15 minutes to return to your previous level of concentration on that particular task. Having done the time management exercise in the 1970s where you

keep a time log and record every five minutes what you are doing, I was skeptical about this claim. One afternoon's research led me to a couple of conclusions. First, it's true. Second, it's worse than reported. Third, we are actively encouraging behavior in adults that some people try to medicate out of children.

I not only found studies that indicate that once interrupted it takes about 15 minutes to get back "into the flow" of high concentration, but I also found one that suggested that the average IT worker gets interrupted about every 11 minutes. Even the "ping" of a new e-mail arriving was enough to interrupt the work at hand, especially since 55% of people reported they open all e-mails shortly or immediately after being received. And if they are not being interrupted by external events

or other people, then they are interrupting themselves with dashes to e-mail, a quick Google of a passing thought, a brief glance at a news site. Doing the math, that suggests that some work environments are just one big interruption.

One reference analyzed the productivity effects of a co-worker asking a simple question like "what's the syntax for the XYZ statement?" That was eye opening. I'm sure my colleagues appreciated me shutting my yap and using the online HELP function more often. I can save 15 seconds of my time by asking you to be a walking reference manual. But I've now cost you — and the project — 10 to 25 minutes of your concentrated time. How selfish is that?

So it is real, and might be even worse than we thought, at least according to collected data. But what about my third point? Are we encouraging behavior in "productive" adults we seek to medicate out of our children? Seems that way.

I completely acknowledge that recent studies indicate a brain chemistry basis for true manifestations of the problem. So if you or your child battles with ADD (Attention Deficit Disorder), please recognize I am not speaking to or about you. I'm after the "culture-induced ADD and loving it" junkies.

Setting aside the folks for whom ADD is a real medical problem, let's look some of the behavioral symptoms of

*Continues on page 46*

**“To get that information just type –**

```
SORT CUSTOMER.MASTER BY CUST.NAME WITH SALESMAN = "JKL" '  
CUST.NBR CUST.NAME CREDIT.LIMIT OPEN.BAL ID.SUPP  
LPTR HEADING "CUSTOMER CREDIT LIMIT REPORT 'D' 'L' "
```

**or I could just build it for you.”**



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